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February, 1930

Research Bulletin No. 122

International Trade in Pork and Pork Products

BY KNUTE BJORKA

AGRICULTURAL EXPERIMENT STATION
IOWA STATE COLLEGE OF AGRICULTURE
AND MECHANIC ARTS

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AGRICULTURAL ECONOMICS SECTION

AMES, IOWA

International Trade in Food and Textiles

By H. W. HARRIS

Editor, *The Journal of the American Medical Association*
Chicago, Ill.

Read at the Annual Meeting of the American Medical Association,
Chicago, Ill., May 1, 1919.

Presented by Dr. H. W. Harris, Secretary of the American Medical Association.

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SUMMARY AND CONCLUSIONS

The facts presented, both statistically and graphically, in the following pages are of significance, showing international trade in hog products as they do, and giving special emphasis to the American export outlet. Inasmuch as they have been presented without a great deal of refined analysis, no attempt to prove anything as to the future of this trade and the significance of it to the Iowa hog producer is justified. Nevertheless, it is possible safely to draw the following conclusions:

1. It is quite evident that the foreign outlet for hog products, and particularly for lard, supports the domestic prices of these products and therefore the domestic price of hogs to the original producers, thus enabling the Corn Belt farmer to use a larger percentage of corn and of his corn growing resources in a more remunerative way than would be possible if this source of demand were cut off.

2. The periodic rise and fall in the volume of exports of these products leads us to believe that the export outlet serves as a buffer against the price depressions which might otherwise result from the cyclical nature of our hog production. It is during the time when farmers in the United States are producing the largest number of hogs and slaughter house products are available in largest quantity that the export movement comes in to relieve the glut and save the price situation to some extent.

3. There seems to be evidence in the statistics herein presented and in other information which shows, in connection with our type of farming studies and other investigations, that our exportable surplus of hog products is not a temporary thing but will continue to characterize our international trade. This is evident not only from the present very substantial volume of these movements but from the potential increases in production in this country. It seems safe to say that the Corn Belt could increase its hog output materially if production should be stimulated by a sufficiently broad demand. Therefore, if the home market expands, it is reasonable to suppose that the larger supply will come from expansion of domestic production rather than from curtailment of exports. The extent to which this movement will go is, of course, dependent upon the profitableness of alternative uses of our feeds and our feed producing farm lands. The essential point is that at present the margin between the pork producing uses of these resources and alternative opportunities for use in other directions is sufficiently great to stimulate further production even on the basis of current prices.

4. In view of the above observations, it seems reasonable to conclude that it is important for hog producers and others interested in the pork producing industry to cultivate good will for their products abroad.

International Trade in Pork and Pork Products

BY KNUTE BJORKA*

Since forty-two percent of the gross income of Iowa agriculture is derived from the sale of hogs, the prominence of the enterprise justifies a study of all its important phases.

The importance of the export outlet for the surplus hog products in the United States is perhaps not fully realized by most farmers and certainly not by many others who are interested in the agricultural problem. Taking the period since the World War as representing present conditions, we find that approximately 10 percent of the hog products of the country, exclusive of lard, finds its way into foreign markets. From 25 to 35 percent of the lard goes into export trade annually.

There seems to be a general impression that the export trade in hog products is of waning importance; that within a few years at most, our output of pork products will be decreased to a basis of domestic demand. It is of importance, therefore, that we get before us the present situation and historical development of our international trade in hog products in order that we may have some basis for a change of ideas in this connection. It is the purpose of this bulletin to present the available information on our foreign trade in hog products. These figures are presented without a great deal of interpretation, but they are believed to be valuable and to lend themselves readily to analysis by the reader.

The information upon which this study is based was secured for the most part from the foreign trades statistics found in several series of reports issued by the United States Department of Commerce. Recent information, not yet available in published form, was obtained from the Division of Statistical and Historical Research, Federal Bureau of Agricultural Economics.

The statistics on international trade in pork and pork products as presented in this bulletin are prefaced by a brief statistical survey of our international trade in all agricultural products, covering in general the period from 1850 to date. In the main portion of the manuscript, figures have been presented detailing, not only our own export trade in pork products, but, so far as

*The author acknowledges the assistance given by Dr. C. L. Holmes, Dr. John A. Hopkins, Mr. J. H. Peters and Miss Winifred Raymond of the Agricultural Economics Section, Iowa State College, and Dr. O. C. Stine and Miss C. G. Gries of the Division of Statistical and Historical Research, Bureau of Agricultural Economics, U. S. Dept. of Agr. Dr. Holmes and Dr. Hopkins helped to plan the study and gave helpful suggestions in its prosecution. Miss Raymond assisted in all of the statistical work, and Mr. Peters helped to bring the statistics up to date and complete the study. Dr. Stine and Miss Gries gave valuable assistance in supplying recent, unpublished data, reading the manuscript and in offering valuable suggestions.

published information is available, the exports and imports of the leading foreign countries which are our customers and those which are our competitors.

AMERICAN FOREIGN TRADE IN ALL AGRICULTURAL PRODUCTS

In 1850 the total population of the United States was 23 million, about 70 percent of which was engaged in agricultural pursuits. By 1920 the population had increased to 106 million and the proportion engaged in agriculture had decreased to 26 percent.¹ Marked changes had taken place in the field of agricultural production during this period. The opening up of vast areas of fertile land, the invention of machinery for use in production, the provision of transportation facilities and the development of improved technique of production in various directions made it possible for a smaller and smaller proportion of agricultural producers to provide the needs of the nation. Not only does 26 percent of the present population produce the necessary agricultural products, but we continue to produce a surplus to be sold elsewhere. Table I shows the value of agricultural production in the United States and the total agricultural exports for each year from 1920 to 1928 inclusive. It will be noted that our agricultural exports ranged from 11.7 percent of our total production in 1926 to 17.0 percent in 1920.

Simply to state that about one-eighth of our total agricultural production is exported leaves the story incomplete. Agricultural products are also imported in considerable quantities. Table II shows the value of total agricultural imports as well as agri-

TABLE I—AGRICULTURAL PRODUCTION, AGRICULTURAL EXPORTS AND THE RATIO OF EXPORTS TO PRODUCTION IN THE UNITED STATES, 1920—1928*

Year ending June 30	Agricultural Production approximate farm value	Exports of agricultural products reduced to approximate farm value	Percent exports are of production
1920	\$15,719,000,000	\$2,682,000,000	17.0
1921	12,668,000,000	1,745,000,000	13.8
1922	9,214,000,000	1,390,000,000	15.1
1923	10,366,000,000	1,313,000,000	12.7
1924	11,288,000,000	1,427,000,000	12.6
1925	12,003,000,000	1,821,000,000	15.2
1926	12,670,000,000	1,480,000,000	11.7
1927	12,080,000,000	1,443,000,000	11.9
1928	12,304,000,000	1,537,000,000	12.5

*Foreign Crops and Markets, Bureau of Agricultural Economics, U.S. Dept of Agr., Vol. 11, No. 24, Dec. 14, 1925, p. 900; and other data from the U.S. Dept. of Agr.

¹In "The Movement of Farm Population," by E. C. Young, Bulletin 426, Agricultural Experiment Station, Ithaca, New York, p. 6, the percent of all persons gainfully employed who were engaged in agriculture is reported as follows: 1820, 87 percent; 1840, 78 percent; 1870, 47 percent; 1880, 44 percent; 1890, 37 percent; 1900, 35 percent; 1910, 33 percent; and 1920, 26 percent. The population of the United States is reported by the U. S. Census Bureau.

cultural exports and the proportion that imports were of exports, by decades, since 1850.² It will be observed that agricultural imports ranged from 51.7 percent of agricultural exports during the 50's to as high as 87.7 percent during the period from 1920 to 1928 inclusive. For individual years the proportions differed somewhat from the 10-year average. For 1926 agricultural imports were slightly in excess of agricultural exports and for 1927 and 1928 they were just a little below the exports.

TABLE II—AVERAGE ANNUAL EXPORTS AND IMPORTS OF AGRICULTURAL PRODUCTS AND THE PERCENTAGE THAT IMPORTS ARE OF EXPORTS, BY DECADES, 1850-1928.

Year ending June 30	Average annual agricultural exports	Average annual agricultural imports	Percent that imports were of exports
1850-1859	\$ 174,384,000	\$ 90,188,000	51.7
1860-1869	178,527,000	133,887,000	75.0
1870-1879	413,464,000	244,906,000	59.2
1880-1889	579,898,000	320,188,000	55.2
1890-1899	682,259,000	386,665,000	56.7
1900-1909	916,899,000	505,662,000	55.1
1910-1919	1,601,285,000	1,078,325,000	67.3
1920-1928*	2,216,307,000	1,944,480,000	87.7

*Average of nine years, from U. S. Dept. of Agr., Division of Statistical and Historical Research, reported in U. S. Dept. of Agr. Yearbooks.

In view of the commanding importance of the exportable surplus of agricultural products, the American farmer is concerned about the foreign markets for this surplus. The fact that the value of our agricultural imports approaches in value the agricultural exports does not alter the problem very much. The products which we import are, in the main, those which we either do not produce at all or produce at a disadvantage as compared with other products in the United States. Among the numerous agricultural imports the principal ones are sugar, silk, coffee and wool. Silk and coffee we do not produce at all, while sugar and wool we produce less advantageously than we do many other agricultural commodities. Our most important exports are cotton, tobacco, wheat and flour, and pork products. Numerous other farm products are also important among our exports. These are products that we can produce advantageously and consequently do produce beyond our domestic needs.

Agricultural self-sufficiency does not seem likely in America. Our population will, no doubt, continue to increase and, therefore, will consume an ever larger proportion of our farm products. Improvements in the technique of production will probably stimulate domestic farm production and thus tend to maintain our exportable surplus indefinitely, tho in a diminishing proportion to our domestic consumption. At the same time, it

²The classification for agricultural exports and agricultural imports used by the Bureau of Agricultural Economics, U. S. Dept. of Agr., has been adopted and the data are obtained from the U. S. Dept. of Agr. Yearbooks.

seems likely that our imports of agricultural commodities will increase in volume rather than diminish. Specialization of production, which has developed because of the economies involved, will probably increase rather than decrease in the future. Foreign exchange of goods—the disposing of surplus products, in the production of which we have the greatest advantage, and the bringing in of products that we can produce less favorably—will in all likelihood continue.

It seems in place here to call attention to the work done by the federal government in aiding the disposal of farm products in foreign countries. The government takes no part in the actual selling or direct promoting of trade abroad, but it performs general functions of value to exporters and producers of export commodities. The Secretary of Agriculture recently summarized the activities of his department in helping to stimulate foreign trade as follows³:

“1. Promulgation and enforcement of official grades and standards for farm products and inspection and certification of certain products for export. Service work in foreign countries in connection with the use of Universal Standards for American cotton.

“2. Continuous study of foreign markets for agricultural products as to conditions of supply, demand, price relationships, and grades and qualities of products preferred.

“3. Supplying foreign market information to farmers, co-operative associations, exporters, and others for their guidance in maintaining a flow of products abroad adjusted to the capacity and preferences of foreign markets.”

SURVEY OF FOREIGN TRADE IN AGRICULTURAL PRODUCTS

*Exports of Agricultural Products*⁴

Considerable change has occurred in our export movement during the last three-fourths of a century. Figure 1 shows the value of annual exports of agricultural products, of non-agricultural products and of total exports from 1850 to 1928, inclusive. We observe that the trend of value of our total export trade quite consistently increased during this period, with exceptionally large exports during the war period, from 1916 to 1921 inclusive. We note also that the proportion that agricultural exports are of total exports has declined and industrial products are becoming more and more important in our exports.

By grouping this period into decades as given in table III we can discern the trend of decreasing relative importance of agricultural products in our export trade. During the decade from 1850 to 1859 an average of 81.4 percent of our total exports were

³A letter sent to the United States Senate by Secretary William M. Jardine, March 2, 1927, on Exports of Farm Products, Document No. 246, 69th Congress, 2nd Session.

⁴The commodities selected by the U. S. Dept. of Agr. and reported in the U. S. Dept. of Agr. Yearbooks, as “Agricultural Products,” are used here.

agricultural products. From 1860 to 1900 our agricultural exports were quite uniformly three-fourths of our total exports. The first warnings of a decline in relative importance of agricultural products in our export trade appeared as early as 1890. The decline became precipitous after 1900 as our growing industrial centers required more of the products of our farms, and our one time European customers turned to newer countries for their wheat and beef. During the decade, 1910 to 1919, the proportion of agricultural products in our export trade was 43.5 percent. The true significance of this figure is somewhat clouded by the inclusion of war time food supplies for our army and our allies on the one hand, and munitions and other war supplies as a part of the non-agricultural exports. Since 1920 the proportions of agricultural products has increased slightly to 44.1 percent as the products of our farms were drawn upon to feed and clothe the countries of war-torn Europe.

In fig. 1 and table III, it appears that the value of our agricultural exports increased considerably during the period from the Civil War until 1922 when they fell off markedly. However, measuring exports in terms of value does not give a true picture of the quantity exported during this period because the price level changed materially. Figure 2 is based upon an index of volume of agricultural exports from 1865 to 1928.⁵ It shows that the volume of exports of agricultural commodities increased rapidly from 1865 to 1881, receded somewhat in 1882 and continued almost unchanged until 1890 when it increased still further. Since that period the trend has been almost constant.

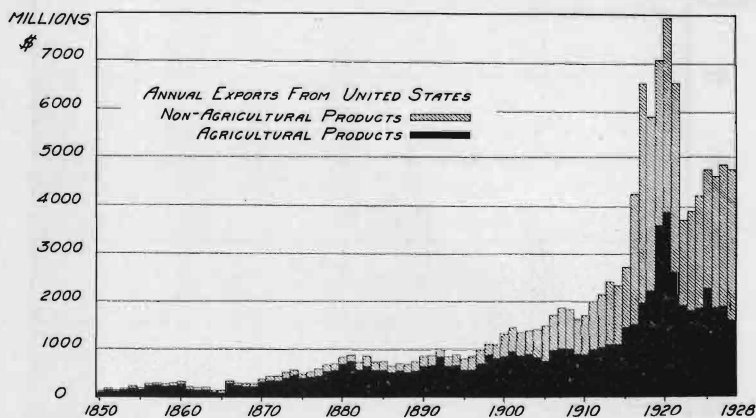


Fig. 1. Value of exports of agricultural and non-agricultural commodities from the United States, annually, 1850 to 1928. (Year ending June 30.)

⁵The index of the volume of exports of agricultural commodities is prepared by the U. S. Dept. of Agr. and is based upon gross exports of 44 of the most important farm products. The index is reported in "Foreign Crops and Markets," Vol. 11, No. 24, pp. 900-917; Vol. 15, No. 13, p. 407; and Vol. 17, No. 13, p. 488.

TABLE III—AVERAGE ANNUAL AGRICULTURAL EXPORTS, TOTAL EXPORTS AND PERCENTAGE THAT AGRICULTURAL EXPORTS ARE OF TOTAL EXPORTS, BY DECADES, 1850-1928*

Year ending June 30	Average annual agricultural exports	Average annual total domestic exports	Percent that agricultural exports are of total domestic exports
1850-1859	\$ 174,384,000	\$ 214,315,000	81.4
1860-1869	178,527,000	232,918,000	76.6
1870-1879	413,464,000	530,140,000	78.0
1880-1889	579,898,000	748,020,000	77.5
1890-1899	682,259,000	953,550,000	71.5
1900-1909	916,899,000	1,554,991,000	59.0
1910-1919	1,601,285,000	3,678,322,000	43.5
1920-1928	2,216,308,000	5,024,138,000	44.1

*Average of nine years. From U.S. Dept. of Agr. Division of Statistical and Historical Research, reported in U.S. Dept. of Agr. Yearbooks 1911, p. 678; and 1927, p. 1130.

Naturally, fluctuations occur from year to year but agricultural exports have been remarkably uniform during the last 35 years. Figure 2 also indicates that the apparently high exports from 1916 to 1921 as shown in fig. 1 are due largely to inflated prices and not to an abnormally large volume of exports.

The percentage that each of the important agricultural commodities was of the total exports, by decades, is shown in table IV. It will be observed that, in general, wheat has decreased in relative proportion to total agricultural exports by decades since the '80's. Meat and meat products advanced from the relatively unimportant position of one-tenth of our agricultural exports in 1860 to one-fifth in 1880, which position was maintained until the period of post-war readjustments. Then, either because of

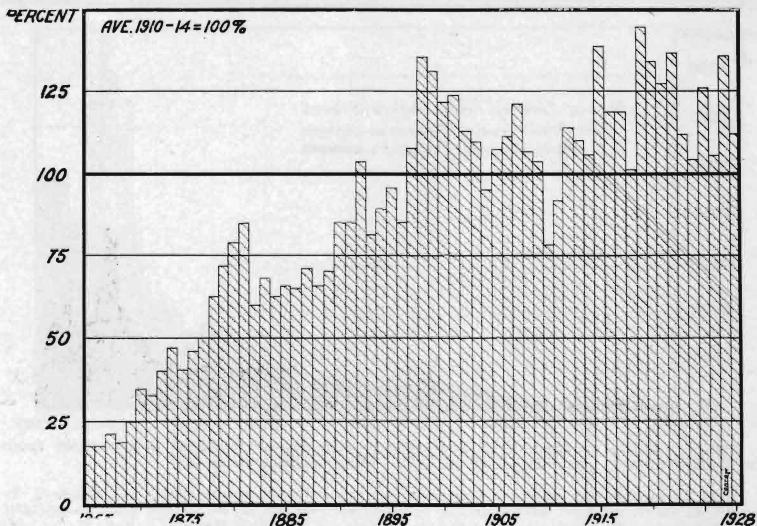


Fig. 2. Index of the volume of agricultural exports, annually, 1866 to 1928. Base average, 1910-1914 = 100. (Year ending June 30.)

TABLE IV—PERCENTAGE THAT COTTON, WHEAT, MEAT PRODUCTS AND TOBACCO ARE OF THE TOTAL VALUE OF AGRICULTURAL EXPORTS, BY DECADES, 1855-1928.

Year ending June 30	Cotton, raw	Wheat, including flour	Meat and meat products	Tobacco, unmanufactured	All other
1855-1859*	61.9	14.5	13.1	8.2	2.3
1860-1869	45.5	20.6	11.3	8.8	13.8
1870-1879	42.6	20.4	15.7	5.4	15.9
1880-1889	37.5	24.9	19.3	3.6	14.7
1890-1899	33.2	21.1	20.0	3.4	22.3
1900-1909	40.0	14.1	20.0	3.3	22.6
1910-1919	37.9	17.6	19.9	4.7	19.9
1920-1928**	39.1	17.0	13.8	7.8	22.3

*Average of five years.

**Average of nine years.

Source: Data from which percentages were computed were obtained from U.S. Dept. of Agr. Yearbooks.

inability to pay the price needed to attract our farmers into those lines of production, or because their meat supplies could be obtained more advantageously from the southern hemisphere or their own back yards, the one-time purchasers of our beef, bacon and lard stocked their pantries from other sources, and the position of meat and meat products in relation to all agricultural exports reverted to a lower level than at any time since 1870. The natural advantages enjoyed by the Cotton Belt evidently have not been threatened by any other country, and cotton has held about the same position in our export trade since 1880. Commodities outside the given four groups have become more and more important during the period.

Imports of Agricultural Products

The trend of value of annual agricultural imports and total imports to the United States from 1851 to 1928 does not differ very materially from the trend of exports shown in fig. 1. The increase in the value of imports since 1900, and particularly the rapid increase since 1915, is accounted for in a large measure by changes in the level of prices.

Unfortunately, no index of the volume of agricultural imports, like the one presented for agricultural exports, is available. To approximate it, however, the annual value of imports was corrected for price level changes and then expressed as a percentage of the 1910 to 1914 average.⁶ This index of the volume of imports by years from 1851 to 1928 inclusive is presented in fig. 3.

The yearly imports of agricultural products into the United States are fairly uniform as shown in fig. 3. The volume has gradually increased during the period, which is natural since imports are composed in a large measure of products that we are

⁶Since an index number of non-agricultural products is not available prior to 1910, the "Agricultural Index Number of the Bureau of Labor Statistics" was used to correct for price level changes of agricultural exports. This will give a rough approximation of the volume of imports by years during the period.

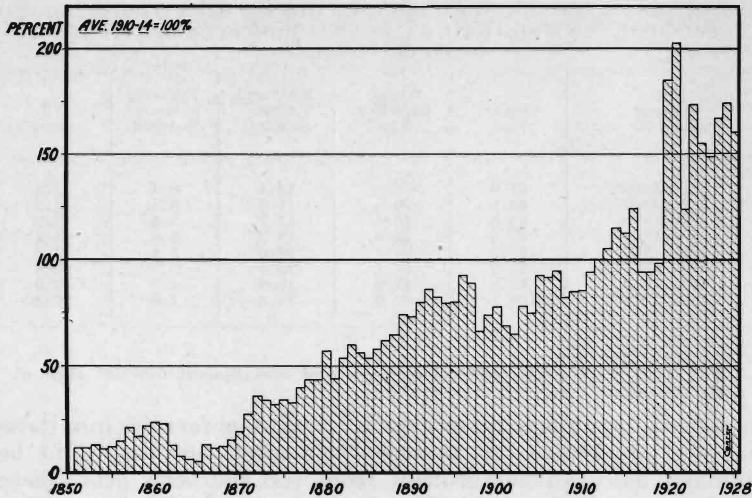


Fig. 3. Index of the volume of agricultural imports into the United States, annually, 1851 to 1928. Base average, 1910-1914 = 100. Annual values of agricultural imports were corrected by changes in price level which makes this index of the volume of agricultural imports approximate. (Year ending June 30.)

unsuited to produce. With a steadily increasing population, these products will be needed in larger quantities from year to year.

The average annual imports of agricultural commodities and of all commodities and the percent that agricultural imports are of total domestic imports, by decades, is found in table V. During the '50's agricultural imports constituted 32.6 percent of the total imports. The proportion increased to 41.4 percent in the decade of the '60's and to 47.8 percent during the '70's. This proportion has been maintained without much change up to the present. Approximately half of the total imports now are agricultural products.

TABLE V—AVERAGE ANNUAL AGRICULTURAL IMPORTS, TOTAL IMPORTS, AND PERCENTAGE THAT AGRICULTURAL IMPORTS ARE OF TOTAL IMPORTS, BY DECADES, 1851-1928.

Year ending June 30	Average annual agricultural imports	Average annual total domestic imports	Percent agricultural imports are of total domestic imports
1851-1859*	\$ 90,188,000	\$ 276,840,000	32.6
1860-1869	133,887,000	323,611,000	41.4
1870-1879	244,906,000	512,124,000	47.8
1880-1889	320,188,000	680,008,000	47.1
1890-1899	386,665,000	757,308,000	51.1
1900-1909	505,662,000	1,087,504,000	46.5
1910-1919	1,078,325,000	2,101,691,000	51.3
1920-1928*	1,944,401,000	3,947,188,000	49.3

*Average of nine years.

Source: U.S. Dept. of Agr., Division of Statistical and Historical Research, reported in U.S. Dept. of Agr. Yearbook, 1927, p. 1130.

A large variety as well as a large volume of agricultural products are imported into the United States annually. The most important are sugar, coffee, silk and wool, which constitute approximately half of all agricultural imports. Other agricultural products that are imported into this country in large quantities are: hides and skins, vegetable oils, tobacco for cigars and cigarets, and a variety of fruits, nuts, and spices. Table VI shows the percentage that sugar, coffee, silk and wool are of the total imports of agricultural products, by decades, from 1855 to 1928.

TABLE VI—PERCENTAGE THAT THE VALUE OF SUGAR, COFFEE, SILK AND WOOL ARE OF TOTAL VALUE OF AGRICULTURAL IMPORTS BY DECADES, 1851-1928

Year ending June 30	Sugar	Coffee	Silk (raw)	Wool (unmanu- factured)	All others
1851-1859*	21.2	17.9	.9	3.1	56.9
1860-1869	25.7	13.9	1.5	6.1	52.8
1870-1879	29.8	18.5	2.2	4.6	44.9
1880-1889	26.3	16.7	4.6	4.5	47.9
1890-1899	25.1	22.1	6.2	5.6	41.0
1900-1909	16.7	13.8	10.6	5.8	53.1
1910-1919	16.7	11.3	12.1	9.6	50.3
1920-1928*	19.0	12.3	18.8	5.6	44.3

*Average of nine years.

Source: Data from which percentages were computed were obtained from the U.S. Dept. of Agr., Division of Statistical and Historical Research, reported in U.S. Dept. of Agr. Yearbooks.

AMERICAN FOREIGN TRADE IN HOG PRODUCTS

We have seen from table IV that the proportion of our total agricultural exports represented by meat and meat products increased from the decade of the '60's up until the beginning of the twentieth century. However, during the four decades from 1880 to 1920 meat and meat products constituted a uniform proportion of our total agricultural exports of approximately one-fifth. Since 1920 meat and meat products have constituted on the average 13 percent of all agricultural products. Hog products are the most important of the meat and meat products and have held that position during the period under consideration. A more detailed analysis of our foreign trade in hog products will now be made. Incidentally some information is presented on the international trade in these products in which the United States is not directly involved except as a competitor.

This study attempts to present a composite picture of the international trade in pork and pork products with special reference to American exports. The principle underlying the picture is the law of comparative advantage, i.e. each country tends to produce the commodities which it can produce most advantageously; hence its largest surpluses for export are always of such commodities. The picture comprises a study of the volume of exports

of pork and pork products from the United States, changes in the volume of our exportable surplus as other lines of agricultural production acquire a relatively greater or less advantageous position and the changes in the volume of products entering trade channels from competing countries. It is necessary to consider these changes in connection with the amounts of other meats and meat substitutes entering foreign trade and to differentiate the kinds of pork products in the light of the peculiar characteristics of each.

EXPORTS OF HOG PRODUCTS⁷

The volume of exports of pork products of the United States is shown in fig. 4.

The trend of pork exports corresponds to the trend of all agricultural products as shown in fig. 1, in its continuous increase in volume up to 1900. The export movement of pork products, however, has peculiarities that differentiate it from the exports of other agricultural products. While following an upward trend, the volume of exports varies. Heavy exports for three or four years are followed by lighter exports for a similar period of time, in reasonable consequence of the cycles of swine production.

The question naturally arises as to the relationship that exists between these periodic changes in exports and the periodic

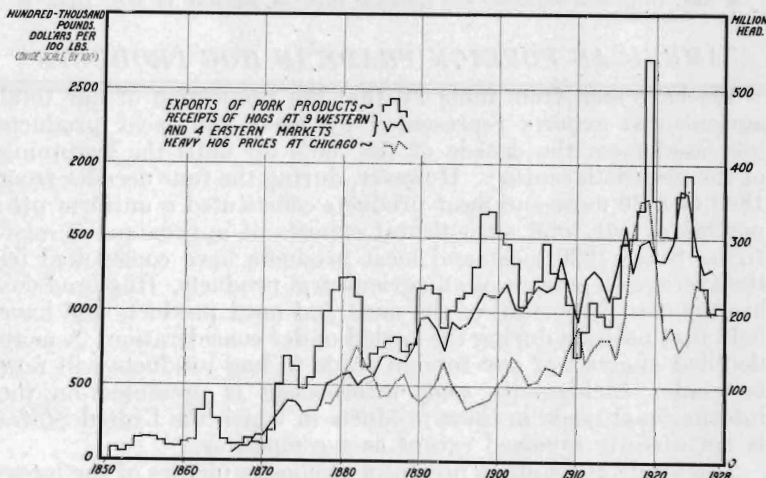


Fig. 4. Volume of exports of pork products from the United States. Receipts of hogs at nine western and four eastern markets, and heavy hog prices at Chicago, annually, 1851-1928.

Note: Pork and pork products included were lard, canned pork, cured pork, bacon, hams and shoulders, salted, pickled and fresh pork.

⁷Data on the annual exports and imports of the various hog products were obtained from the annual reports of "The Foreign Commerce and Navigation of the United States."

changes in market receipts and prices of hogs—the so-called hog cycles. The combined annual receipts of hogs at 13 representative markets* and the price of heavy hogs at Chicago are plotted in fig. 4 to show the relationships between these and the annual exports of hog products since 1870. A marked direct relationship exists between the annual quantity of hogs marketed and the annual quantity of exports. An inverse relationship between receipts and price of hogs is shown. In other words, heavy receipts, heavy exports and low prices tend to go together; and low receipts, low exports and high prices usually are found at the same time.

At this point attention should be called to an erroneous notion that heavy foreign sales mean high foreign demand. It may, and it may not. One may conclude from fig. 4 that it ordinarily does not. Extraordinarily heavy foreign sales are usually possible only if the price is sufficiently low to induce foreign purchases. If the price had remained at a higher level the quantity taken would have been smaller. Both quantity of products sold and price must be taken into consideration in measuring demand.

Since pork product prices follow closely the changes in hog prices, the latter are a sufficiently accurate measure of the cost of the products entering foreign trade." It is a truism that as the cost of production of a commodity is lowered, the comparative advantage in the production of that commodity is increased. During the periods of favorable corn-hog ratios, production is stimulated, domestic demand is satiated and the larger volume available for foreign markets is absorbed only as a result of concessions in price.

The volume of pork and pork product exports has increased consistently by decades since 1851. The average annual exports by decades increased from 97 million pounds in the '50's to 1,462 million pounds per year during the period 1920 to 1928, inclusive.

A further examination of export data shows that in 1900 the trend turned downward and continued thus for 14 years, being broken only by the abnormal demand of the war period. At the close of the war, European countries depended on the United States for supplies of pork products while their own industry was in process of restoration. The sharp decline in exports after 1924 indicates that European demand is being supplied from some other sources and that future bids from the United States for the trade of those countries must be on the basis of price concessions. The question may be raised altho it is too early to form conclusions as to whether we are back on the declining trend of exports of hog products which had its origin in 1900. If

*Nine western markets are Chicago, Denver, East St. Louis, Fort Worth, Kansas City, Omaha, St. Joseph, South St. Paul and Sioux City. The four eastern markets are New York, Philadelphia, Boston and Baltimore.

*See "Some Statistical Characterizations of the Hog Market," Iowa Agr. Exp. Sta. Research Bul. 102, pp. 20-22.

declining volume in subsequent years bears out this premise, the heavy exports during the period 1915 to 1924 must be assigned to war conditions, and the rise of exports in recent years must be qualified.

That the United States occupies a position of greater advantage in growing and fattening hogs than beef cattle is brought out by an examination of table VII. With the exception of the 30 years from 1880 to 1909, exports of pork and pork products have constituted about three-fourths of the value of all meat exports since Civil War times.

The temporary ascendancy of the export trade in beef during the years 1880 to 1910 is attributable to economic developments affecting production costs. The introduction of refrigeration in the '80's opened the markets of Europe to the beef cattle of the western ranges. Low production costs on the open range, penetration of the range country by transcontinental railroads connecting with the eastern seaboard, the rise of the packing industry and the extension of the market area for fresh and frozen beef by the use of refrigerator cars and ships combined to give cattle growers and feeders an advantage not previously enjoyed. For this brief period the export market was always at hand as an alternative outlet for excessive supplies of fresh and frozen beef. Even during this period, exports of pork products constituted between 64.2 and 67.1 percent of all meat exports. As soon as the open range in the United States was occupied by homesteaders, the advantage in the production of beef cattle passed to other open range countries, notably Argentina.

After 1910 pork products constituted an increasingly greater percentage of all meat exports, and amounted to over 80 percent in 1920. The United States holds a comparative advantage in the production of pork exceeding that in the case of beef animals,

TABLE VII—VALUE OF MEAT AND MEAT PRODUCTS EXPORTS, PORK PRODUCTS EXPORTS, AND THE PERCENT THAT PORK PRODUCTS ARE OF ALL MEAT PRODUCTS EXPORTS, BY DECADES, 1855-1928.

Year ending June 30	Average annual value of meat and meat products exports	Average annual pork products exports	Percent that pork products are of total meat and meat products
1855-1859*	\$ 13,552,000	\$ 10,667,000	78.7
1860-1869	20,096,000	15,428,000	76.8
1870-1879	64,823,000	52,811,000	81.5
1880-1889	112,032,000	72,275,000	64.5
1890-1899	136,294,000	91,543,000	67.1
1900-1909	181,502,000	116,671,000	64.2
1910-1919	318,453,000	235,709,000	74.0
1920-1928**	306,005,000	254,489,000	83.2

* Average of five years.

**Average of nine years.

Source: U.S. Dept. of Agr., Division of Statistical and Historical Research, reported in U.S. Dept. of Agr. Yearbooks.

TABLE VIII—VALUE OF AGRICULTURAL EXPORTS, PORK PRODUCTS EXPORTS AND THE PERCENT THAT PORK PRODUCTS ARE OF ALL AGRICULTURAL PRODUCTS, BY DECADES, 1855-1928.

Year ending June 30	Average all agricultural exports	Average of pork products exports	Percent that pork products are of all agr. products
1855-1859*	\$ 174,384,000	\$ 10,667,000	6.1
1860-1869	178,527,000	15,428,000	8.6
1870-1879	413,464,000	52,811,000	12.8
1880-1889	579,898,000	72,275,000	12.5
1890-1899	682,259,000	91,543,000	13.6
1900-1909	916,899,000	116,671,000	12.7
1910-1919	1,601,285,000	235,709,000	14.7
1920-1928**	2,216,308,000	254,489,000	11.5

*Average of five years.

**Average of nine years.

Source: U.S. Dept. of Agr. Yearbooks.

more especially since the passing of the range which resulted in the higher costs of production attending present day methods of cattle growing and finishing.

Too much significance should not be attached to the preponderance of pork products in the total meat exports of the United States. A fact of greater significance is the percentage that pork products exports are of all agricultural exports as shown in table VIII. The proportion that the value of pork products exported was of all agricultural products sold abroad ranged from 6.1 percent in the '50's to 14.7 percent for the decade ending with 1919. Since 1920 the value of pork products exports has constituted only 11.5 percent of the value of all agricultural exports.

From 1870 to the beginning of the World War there was very little variation in the proportion of pork products exports to all agricultural exports. The importance of cured pork for army rations is evident in the relatively larger volume during the war. Since 1920 pork products constitute 11.5 percent, a reduced proportion of our agricultural exports. Again, it is too early to form conclusions, but if the declining importance of pork products in our agricultural export trade is resumed there is evidence that the advantage of marketing the corn crops of the Middle West in the form of pork may possibly be declining.

Further analysis of the exports of hog products is needed. Numerous products are derived from the hog, and each one has market characteristics of its own. Lard and cured products, namely bacon, hams and shoulders, are the most important in our export trade. Fresh, chilled, frozen, canned and pickled pork products enter foreign trade but are relatively less important than are cured products and lard. No single one of the former products accounts for more than 5 per cent of the total. During the '50's, however, cured, salted and pickled pork was relatively more important than either cured products or lard. Figure 5

shows the proportion of the total hog product exports represented by lard, cured products (bacons, hams and shoulders) and other pork products, by decades since 1850. The proportion of the total exports represented by lard is more uniform than the other groups. Cured, salted and pickled pork constituted 38.7 percent of all pork products exported in the '50's. This percentage decreased to 22.4 in the '60's and to 9.8 in the '70's. It has not exceeded this proportion since and has fallen as low as 2.2 percent on the average since 1920. The reduction of the proportion that cured, salted and pickled pork was of the total in the '60's and '70's has been offset by increases in hams, shoulders and bacon. Since 1870, lard, hams, shoulders and bacon have constituted over 90 percent of all hog products exported by decades except during the decade, 1900 to 1909, when they decreased to 88.1 percent.

It is not always possible to distinguish between countries importing and those exporting pork products. A country may both export and import; have an export surplus one year and an import surplus the next. Or, a country may export one type of pork product and import some other. Some countries, however, can be definitely designated as importing and others as exporting countries for hog products. The industrial nations of Europe

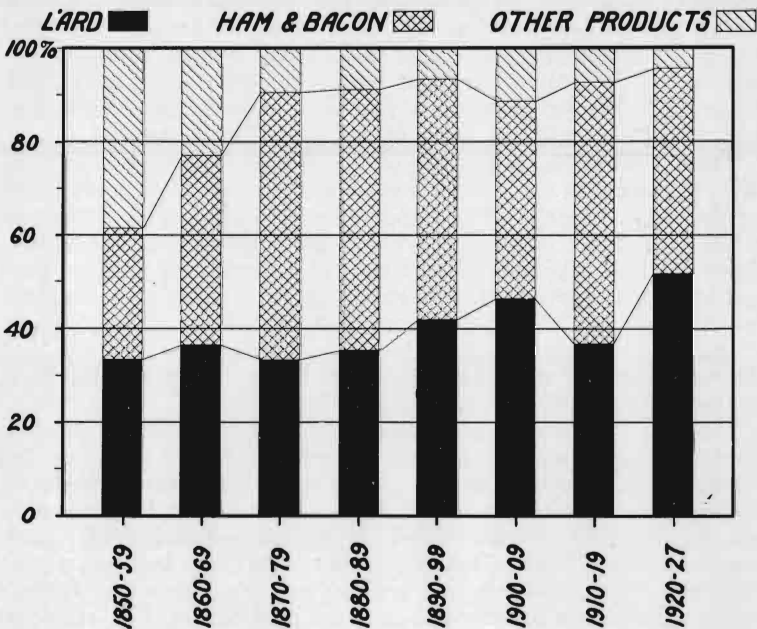


Fig. 5. Percentage that lard, bacon, hams and shoulders, and other pork product exports were of total pork product exports by decades, 1850-1928.

are our most important customers for hog products. The United Kingdom is the outstanding purchaser of bacon, hams and shoulders, and it and Germany have in recent years taken about equal amounts of lard. Other European countries securing pork products from the United States are Belgium, France, Italy, Norway and Austria. Cuba is an important customer for lard. Other countries take our hog products in smaller amounts. A more detailed analysis of the destination of these products will be made when individual hog products are studied.

Competition in the sale of pork products in foreign markets comes from two sources, namely, other countries that sell in the same market in which we sell and the production of hog products in the countries that are our customers. Our principal competitors are Denmark, Canada and the Netherlands. The changing hog production in the countries that are our competitors as well as in the countries that are our customers influences the foreign market for our products. It is of interest, therefore, to see how hog production in these countries has changed from year to year over a period of time. Figure 6 shows the number of hogs in the United States, Germany, United Kingdom and Denmark from 1907 to 1928 inclusive.¹⁰ Data for Canada are not available.

It appears from fig. 6 that the hog population of Denmark is extremely small. It must be remembered, however, that Denmark is a small country, with a population slightly above 3,500,000. Denmark, with about 85 hogs per 100 of population, has more swine in proportion to its population than any other country. The United States has 50, Germany 30 and the United Kingdom 15 hogs per 100 of population.¹¹

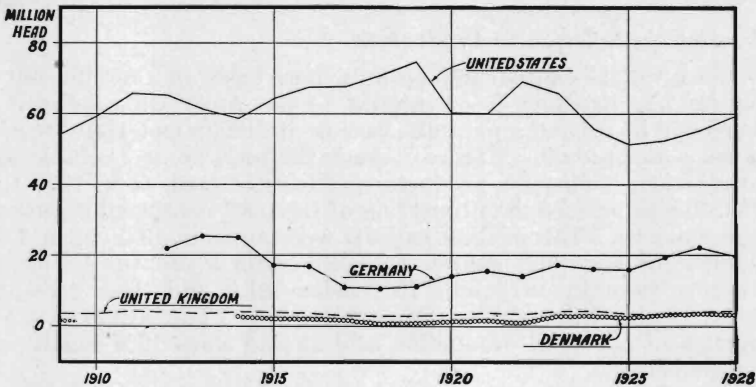


Fig. 6. Number of hogs on farms in the United States, Germany, the United Kingdom, and Denmark, annually, 1909-1928.

¹⁰These data are not available for Germany from 1909 to 1911 and for Denmark from 1910 to 1913. Data for the Netherlands are available for only six of the nineteen years of the period and consequently are not shown graphically.

¹¹Based upon inventories of hogs on farms and the total population for each country during the same period.

The variation in per capita consumption of pork in the different countries is shown in table IX for pre-war and annually for the seven years, 1921 to 1927 inclusive. The average for this period is given in the column to the extreme right in the table. It is seen that the United States has the highest per capita consumption of pork with an average for the seven years, 1921 to 1927, of 82.5 pounds. Canada comes next with an average of 78.4 pounds for the same period, while Denmark consumed only 37.2 pounds per person. Consequently Denmark, with a large number of hogs in proportion to its population and a relatively low domestic consumption, has a relatively large amount of pork available for export.

TABLE IX—ESTIMATED PER CAPITA CONSUMPTION OF PORK, INCLUDING LARD, IN VARIOUS COUNTRIES, PRE—WAR AND ANNUALLY 1921-1927.

Country	Pre-war	1921	1922	1923	1924	1925	1926	1927	7 years' ave. 1921-1927
Argentina.....	15.1	26.8	24.1	26.1	27.7	24.3	25.0	28.5	26.1
Australia.....	14.4	10.7	14.6	13.9	14.8	15.6	.....	.....	13.9
Belgium.....	42.2	33.0	27.4	31.3	34.9	34.7	33.9	.....	32.5
Canada.....	66.7	73.5	74.0	81.5	90.4	72.5	75.2	81.4	78.4
Denmark.....	45.4	.....	37.2	.....	.....	.....	.....	.....	37.2
France.....	47.0	35.6	37.8	38.0	40.0	37.3	.....	.....	37.7
Germany.....	73.1	46.0	41.4	39.7	54.7	59.9	62.0	71.6	53.6
New Zealand.....	.....	.....	29.3	26.3	27.9	35.3	33.9	.....	30.5
United Kingdom.....	34.2	33.2	37.0	41.2	43.1	38.9	35.2	41.7	38.6
United States.....	72.7	74.8	80.3	90.0	90.1	80.8	79.2	82.3	82.5

*Where data are missing for certain years the average for the country is based upon the years for which consumption figures are available.

Source: U. S. Dept. of Agr. Foreign Crops and Markets, Vol. 17, No. 6, Aug. 6, 1928, pp. 218-220.

Exports in Relation to Production

Since we are consistently on an export basis, our foreign outlet for hog products is of interest to the American producers. Lard will be treated separately, because it differs materially from other pork products. Figure 7 shows the total annual volume of production of all pork products, exclusive of lard, from 1907 to 1928 inclusive, and the proportion of the total consumed at home and exported. The smallest exports were made in 1928 when 3.6 percent of our total supply was sold abroad and the heaviest exports were in 1918 and 1919 when 21.6 and 23.7 percent respectively, was sold in foreign markets. The average proportion of our total production sold abroad since 1907 has been 9.8 percent.

The amount of pork products exported from year to year varies to some extent with the amount produced. This was very evident in 1910 and 1911 as shown in fig. 7. In 1910 we exported 306 million pounds (exclusive of lard), which we increased in 1911 to 446 million pounds. Our total production increased from

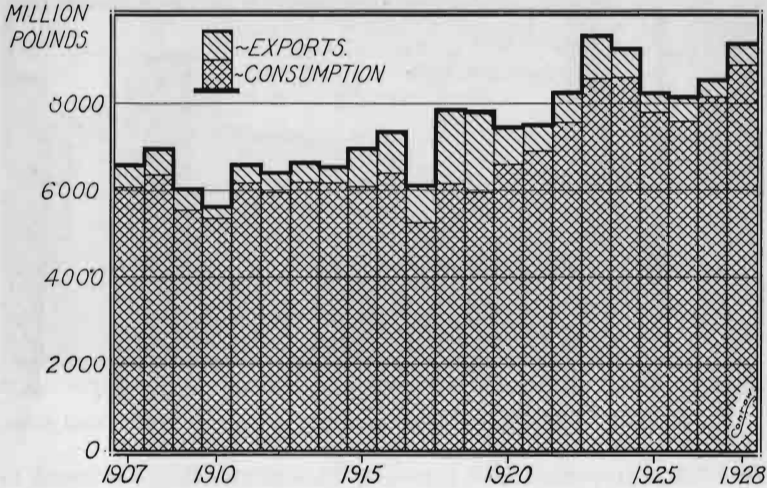


Fig. 7. Pork products exclusive of lard: Production, domestic consumption, and exports in the United States, 1907-1927.

5,649 million pounds in 1910 to 6,596 million pounds in 1911. In 1910, 26 million hogs were slaughtered under federal inspection in the United States as compared to 34 million in 1911. During 1918 and 1919 exports of pork products were stimulated because of the World War. Our production in 1917 was the lowest since 1910 with 6,139 million pounds, yet we exported 916 million pounds, or 14.9 percent. This may be accounted for by the effort made to help feed the allied armies during the war and the campaign in this country to "eat less meat." The domestic consumption of pork products in 1917 was the lowest during the last 21 years.

Fig. 8 shows the annual production, exports and domestic consumption of lard from 1907 to 1928 inclusive. The proportion of total lard production exported ranged from 24.6 and 25.7 percent in 1917 and 1910, respectively, to 41.1 percent in 1921. The average proportion of the production exported for the 22 years, 1907 to 1928 inclusive, was 31.4 percent.

Since Germany and the United Kingdom are our most important customers for hog products, it will be of interest to see how much of their total consumption of these products is produced at home and how much is obtained from other countries. Figure 9 shows the estimated annual consumption of pork, including lard, in Germany for 1913, and from 1921 to 1928, inclusive,¹² apportioned between the amount produced domestically and the amount imported. During 1913, Germany imported 6.1 percent of the total pork and pork products that it consumed.

¹²Data are not available for the period of 1914 to 1920, inclusive.

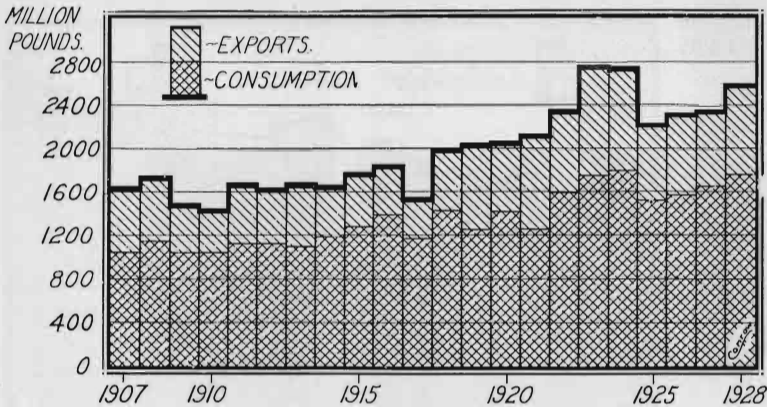


Fig. 8. Lard: Production, domestic consumption and exports in the United States, 1907-1928.

In 1921 it imported 19.0 percent. This proportion decreased to 9.4 percent in 1922 and rose to 17.1 percent in 1923. Figure 9 shows that from 1924 to 1927 domestic production in Germany increased very rapidly and that the quantity of pork products

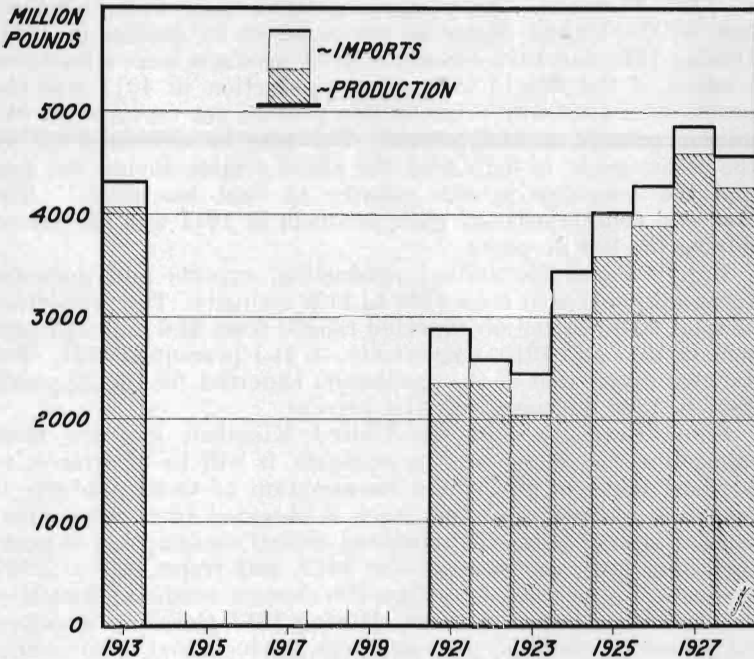


Fig. 9. Consumption of pork products, domestic production and imports in Germany, 1913, and 1921-1928.

imported decreased. The proportion of total pork products consumed in Germany that were imported from other countries decreased from 17.1 percent in 1923 to 6.1 percent in 1927.

In high contrast with Germany's home production of pork and its products is that of the United Kingdom, shown in fig. 10. The United Kingdom produces a much smaller proportion of its domestic requirement of pork products than Germany.

From 1907 to 1913 the United Kingdom imported annually from 41 to 47 percent of the total pork consumed. Since 1914 it has imported annually between 50 and 60 percent of its pork requirements, except in 1921-1922 when the imports fell to 48 percent, and in 1918-1919 when they rose to 75 percent of the total pork consumed.

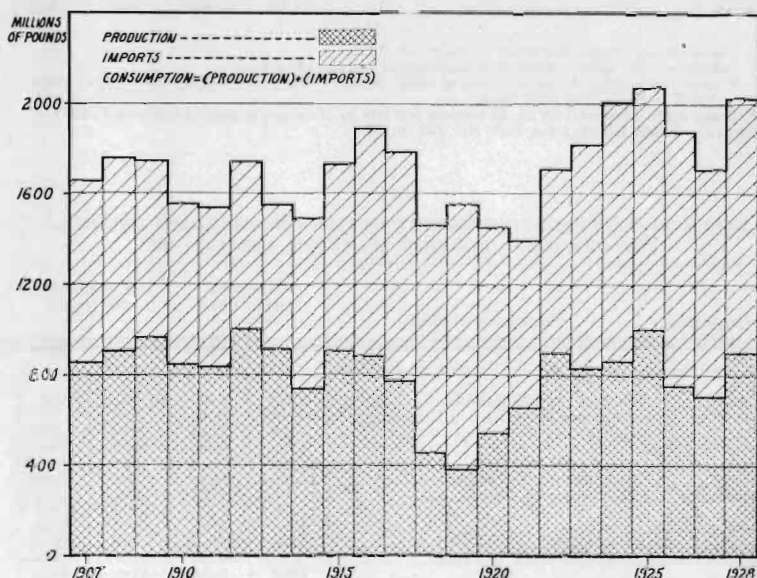


Fig. 10. Pork products: Production, imports and domestic consumption in the United Kingdom, 1907-1928.

Import Duties on Hog Products in Foreign Countries

It seems in place at this point to call attention to the difference in policy among foreign countries with respect to duties levied on imports of hog products. These duties vary with the products and, consequently, are not uniform. The import duties levied by Canada, Mexico, Cuba, the United Kingdom, France, Italy, the Netherlands, Belgium, Germany, Poland and Danzig, Denmark, Norway and Sweden, on lard, bacon, and ham for the years 1913 and 1923 are found in tables X, XI and XII, respectively.

TABLE X—COMPARATIVE IMPORT DUTIES ON AMERICAN LARD IN PRINCIPAL FOREIGN MARKETS, 1913 AND 1923.

Countries	Statement of duty	Duties in foreign units		U.S. equivalent per pound	
		1913	June 1923	1913	June 1923
Canada.....	Dollars per 100 pounds.....	2.00	2.00	\$.020	\$.020
Mexico.....	Pesos per 100 kilos.....	13.44	5.60	.031	.012
Cuba.....	Dollars per 100 kilos.....	2.91	2.91	.013	.013
United Kingdom.....	.....	Free	Free	Free	Free
France.....	Francs per 100 kilos.....	30.00	30.00	.026	.008
Italy.....	Gold lire per 100 kilos.....	10.00	Free†	.009	Free†
Netherlands.....	.....	Free	Free	Free	Free
Belgium.....	.....	Free	Free	Free	Free
Germany.....	Gold marks per 100 kilos.....	10.00	Free†	.011	Free†
Poland & Danzig.....	Gold francs per 100 kilos.....	.....*	62.00	.....*	.054
Denmark.....	.....	Free	Free	Free	Free
Norway.....	Crowns per 100 kilos.....	10.00	13.33	.012	.009°
Sweden.....	Crowns per 100 kilos.....	15.00	15.00	.018	.018

†. Temporarily suspended since January 12, 1923.

†. Admitted free under temporary suspension of duty since 1914

*. Poland not a separate jurisdiction in 1913; post-war duty is as of January, 1924, when tariff stabilized on gold basis.

°. Duty since advanced to 25.33 crowns per 100 k. (1.5c per pound) on March 1, 1924.

Source: Trade Information Bul. No. 233, p. 25.

TABLE XI—COMPARATIVE IMPORT DUTIES ON AMERICAN BACON IN THE PRINCIPAL FOREIGN MARKETS, 1913 AND 1923.

Countries	Statement of duty	Duties in foreign units		U.S. equivalent per pound	
		1913	June 1923	1913	June 1923
Canada.....	Dollars per 100 pounds.....	2.00	2.00	\$0.02	\$0.02
Mexico.....	Pesos per 100 kilos.....	20.16	22.40	.046	.05
Cuba.....	Dollars per kilos.....	4.15	4.15	.019	.019
United Kingdom.....	.....	Free	Free	Free	Free
France.....	Francs per 100 kilos.....	50.00	Free†	.044	Free†
Italy.....	Gold lire per 100 kilos.....	25.00	Free†	.022	Free†
Netherlands.....	Florins per 100 kilos.....	.75*	.75*	.001*	.001*
		1.00°	1.00°	.002°	.002°
Belgium.....	.....	Free	Free	Free	Free
Germany.....	Gold marks per 100 kilos.....	36.00	Free†	.039	Free†
Poland & Danzig.....	Gold francs per 100 kilos.....	...../	24.50	...../	.021
Denmark.....	.....	Free	Free	Free	Free
Norway.....	Crowns per 100 kilos.....	15.00	20.00>	.018	.015>
Sweden.....	Crowns per 100 kilos.....	18.00|	18.00|	.022|	.022|

† Admitted free under temporary suspension of duty since 1914.

† Temporarily suspended since June 12, 1923.

> Duty since advanced to 38 crowns per 100 kilos (2.3 cents per lb.) on March 11, 1924.

*Salted.

°Smoked or dried.

| Smoked.

/ Poland not a separate jurisdiction in 1913; post-war duty is as of January, 1924, when tariff stabilized on gold basis.

Source: Trade Information Bul. No. 233, p. 24.

TABLE XII—COMPARATIVE IMPORT DUTIES ON AMERICAN HAM IN PRINCIPAL FOREIGN MARKETS, 1913 AND 1923.

Countries	Statement of duty	Duties in foreign units		U. S. equivalent per pound	
		1913	June 1923	1913	June 1923
Canada.....	Dollars per 100 pounds.....	2.00	2.00	\$.020	\$.020
Mexico.....	Pesos per 100 kilos.....	20.16	22.40	.046	.051
Cuba.....	Dollars per 100 kilos.....	5.72	5.72	.026	.026
United Kingdom.....	.....	Free	Free	Free	Free
France.....	Francs per 100 kilos.....	50.00	Free†	.044	Free†
Italy.....	Gold lire per 100 kilos.....	25.00	Free†	.022	Free†
Netherlands.....	Florins per 100 kilos.....	1.00	1.00	.002	.002
Belgium.....	.....	Free	Free	Free	Free
Germany.....	Gold marks per 100 kilos.....	35.00	Free†	.038	Free†
Poland & Danzig.....	Gold francs per 100 kilos.....	.....*	99.00	.....*	.087
Denmark.....	.....	Free	Free	Free	Free
Norway.....	Crowns per 100 kilos.....	30.00	40.00°	.036°	.029°
Sweden.....	Crowns per 100 kilos.....	40.00|	133.33'|	.049|	.096'|
		12.00°	12.00°	.015°	.015°
		18.00|	18.00|	.022|	.022|

†. Admitted free under temporary suspension of duty since 1914.

†. Temporarily suspended since June 12, 1923.

*. Poland not a separate jurisdiction in 1913; post-war duty is as of January 1924, when tariff stabilized on gold basis.

°. Unsmoked.

°. Duties since advanced to 38 crowns per 100 kilos (4.6 cents per pound) for unsmoked hams and 253.33 crowns (15.3 cents) for smoked hams as of March 1, 1924.

|. Smoked.

Source: Trade Information Bul. No. 233.

IMPORTS OF HOG PRODUCTS

Altho small quantities of hog products enter the United States annually, the amount is insignificant in comparison to our exports. Statistics on imports are less complete than those on exports. During most of the period since 1850 the imports of hog products cannot be separated from import data of other meats. However, hog products are reported separately from 1915 to 1920. During these six years the volume of imports of hog products was less than one-tenth percent of the volume of exports. Most of this comes from Canada. Because of the minor importance of hog product imports and the difficulty in getting a satisfactory statistical series of them for the period, a detailed analysis of these imports will not be made.

EXPORTS OF LARD

Lard is the most important pork product entering our agricultural export trade. Figure 5 shows that it comprises from one-third to one-half of all pork products sold abroad annually. Figure 9 shows that between one-fourth and one-third of our total lard production goes into export trade. We are not only interested in the amount sold on the export market, but we are interested in ascertaining the countries to which it goes and the competition we must meet in these countries. We shall, therefore, present a more detailed picture of the movement of lard in foreign trade.

Figure 11 shows the annual exports of lard from the United States from 1850 to 1928.¹² It will be noticed that the movement is quite similar to the exports of total hog products shown in fig. 4, of which lard is a part, and also that the periodic increases and decreases coincide quite closely with the periodic shifts in hog production in the United States. Attention may be called to the falling off in exports during the period of the war when Germany, one of our important customers for lard, was blockaded. Lard exports increased considerably after 1919, reaching a high point in 1923 and 1924.

We are interested in seeing how the lard exports to individual countries have behaved during the period studied. The annual exports to our principal customers in the lard trade are shown in fig. 11. It will be observed that lard exports to the United Kingdom have exceeded the exports to Germany quite consistently since 1850, except for occasional years.

Exports of lard to Germany, as well as other products, were discontinued during the war. There were no exports between August, 1914, and June, 1919, altho small quantities appear to have been shipped in 1915.

Prior to 1919 foreign trade data were reported for the fiscal year ending June 30 instead of for the calendar year. We sold slightly less than 4 million pounds of lard to Germany, in July, 1914, before the beginning of the World War, which represents the total exports of lard to that country for the fiscal year ending June 30, 1915. Lard exports to Germany have been heavy since 1921 with the exception of the latter part of 1926 and dur-

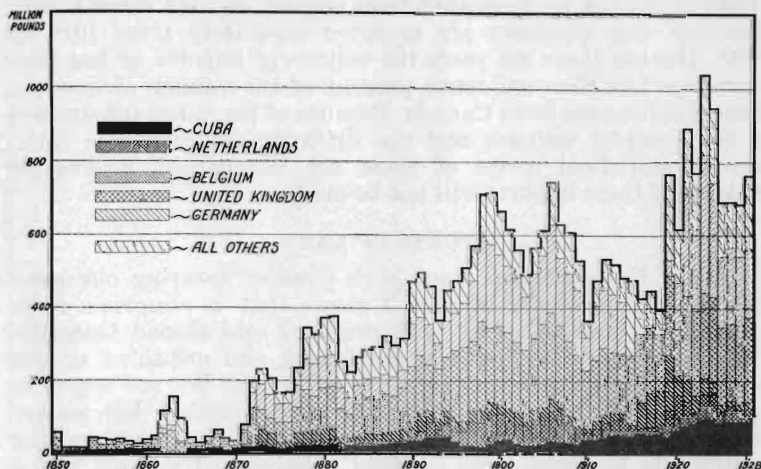


Fig. 11. Lard exports from the United States, annually, 1850-1928.

¹²This does not include neutral lard and lard compounds.

ing 1927 when German hog production was stimulated to supply a larger portion of the domestic requirement.

Altho the United Kingdom and Germany are our most important customers for lard, Cuba, the Netherlands, Belgium and Denmark, in the order named, are heavy purchasers. A large number of other countries take smaller amounts. We have exported lard to Cuba regularly since 1850, except during the Civil War years 1862 to 1864, inclusive. Since 1910 Cuba has increased its purchase of lard from us, reaching the high point in 1924 when it bought 94 million pounds.

The Netherlands is irregular in its purchases of lard, as shown in fig. 11. The amounts taken from 1915 to 1919 inclusive were relatively small, while purchases have approximately trebled since 1920. Lard exports to Belgium were very high from 1916 to 1919 inclusive and remained so until 1924. The years 1925, 1926 and 1927 showed marked reductions. Denmark has taken a small but fairly uniform amount annually since 1878. Italy, France, Poland and the free city of Danzig, Finland, Canada, Mexico, Central America, Columbia, Peru and a score of other countries, all combined to take the lard exports designated on fig. 11 as "All Other Countries." The exports to these countries combined have been equal in amount to the lard taken by the United Kingdom during the last few years.

The percentage of our average annual exports of lard to Germany, the United Kingdom, the Netherlands, Cuba and all other

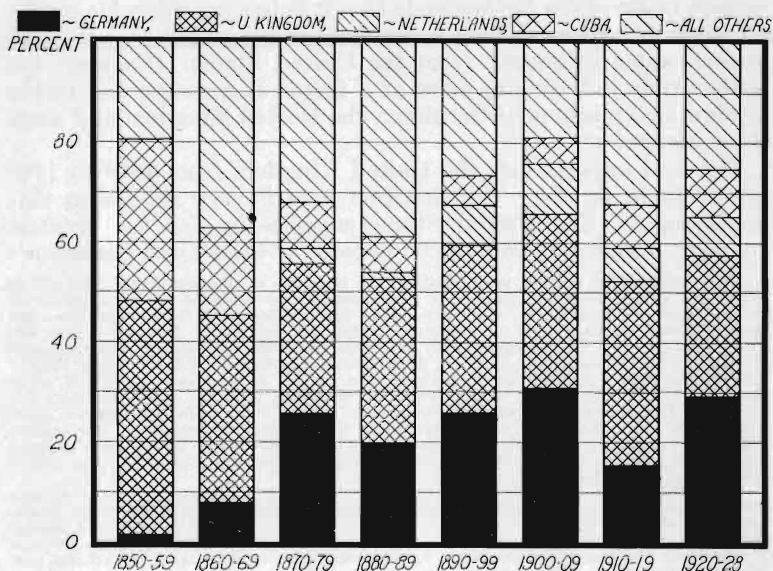


Fig. 12. Percentage of total lard exports of the United States to Germany, the United Kingdom, the Netherlands, Cuba, and all other countries by decades, 1850-1927.

countries, by decades, is given in fig. 12. This chart shows that the United Kingdom and Germany are our most important customers for lard. During the '50's and '60's they took a little less than half of our total exports, while since 1870 they have taken between 50 and 60 percent of the total, reaching as high as 66 percent of our exports during the decade beginning in 1900.

We have seen from fig. 8 that the United States exports from one-fourth to one-third of the total lard which it produces annually. We have also observed that these exports go to a large number of different countries, the most important of which are the United Kingdom and Germany, with Cuba and the Netherlands ranking next. In order to ascertain what kind of competition we have in these markets, it is necessary to examine the lard imports into these countries to determine their origin and the comparative importance of our trade.¹⁴

Annual lard imports into Germany from 1909 to 1928 are given in fig. 13, which shows not only the amounts but also the source of their imports.¹⁵ Figure 13 shows that before the World War Germany obtained about 95 percent of her lard from the United States and the balance from the Netherlands, Denmark and other countries. Since 1920 Germany has secured by far the greater amount of her imports from the United States, but the proportion has fallen off slightly, a larger amount being supplied by the Netherlands. It will be found when we come to examine the foreign trade of the Netherlands that it is to a considerable extent a trader in lard as well as a surplus producer and that its lard imports come originally from the United States. However, the Netherlands is becoming more of a factor as a competitor in the foreign lard markets of Germany, the United Kingdom and some other countries.

The lard imports into the United Kingdom from 1909 to 1928 are given in fig. 14. The situation here is very similar to that in Germany. The United States supplies by far the greatest quantity, ranging from 80 to 96 percent of the United Kingdom's

¹⁴The exports of specific pork products as reported by the exporting country do not always check with the imports of these products as reported by the country receiving them. For example, the exports of lard, bacon and fresh pork from the United States to Germany, as reported in the United States Foreign Trade and Navigation reports, do not check with the imports of these products into Germany, as reported in "Auswärtigen Handel; Statistisches Jahrbuch für das Deutsche Reich." Similar discrepancies often occur between the export and import reports of other countries. This may be due to differences in the fiscal year for which the data are reported. The classifications of products are not always uniform in the different countries. Then, too, there may be differences in the method of reporting the exports and imports. This study will make no attempt to reconcile any discrepancy between the original reports, but the data will be presented as they are reported in the official publications of the various countries.

Trade Promotion Series No. 26, containing official trade statistics of the foreign countries included in this study, served as source material for practically all of the international trade data of individual pork products from 1909 to 1924. Acknowledgment is made to the U. S. Dept. of Agr. Bureau of Agricultural Economics, Division of Historical and Statistical Research, for obtaining similar data from the official publications for most of the foreign countries from 1925 to 1928.

¹⁵Data for the period 1914 to 1919, inclusive, are not available.

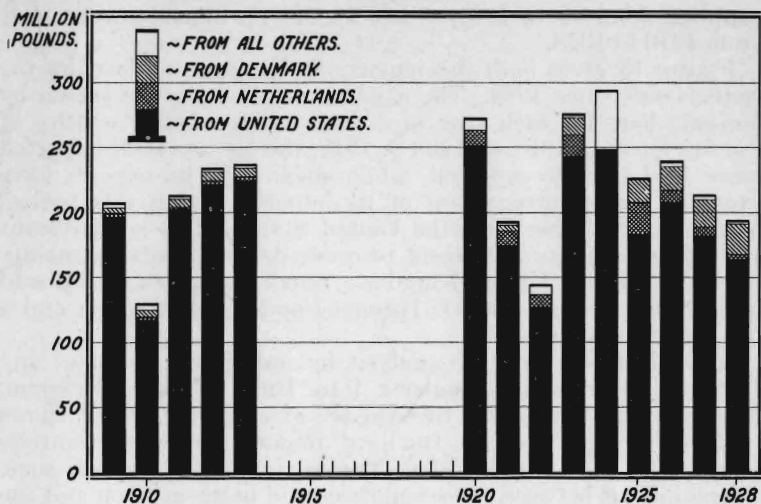


Fig. 13. Lard imports into Germany from the United States, the Netherlands, Denmark, and all other countries, annually, 1909-1928.

total lard imports; however, the proportion is not quite as large now as it was before the war. The importance of Canada, our principal competitor in the lard market of the United Kingdom, has been increasing since 1923.

The United States has Cuba's lard market to itself, having

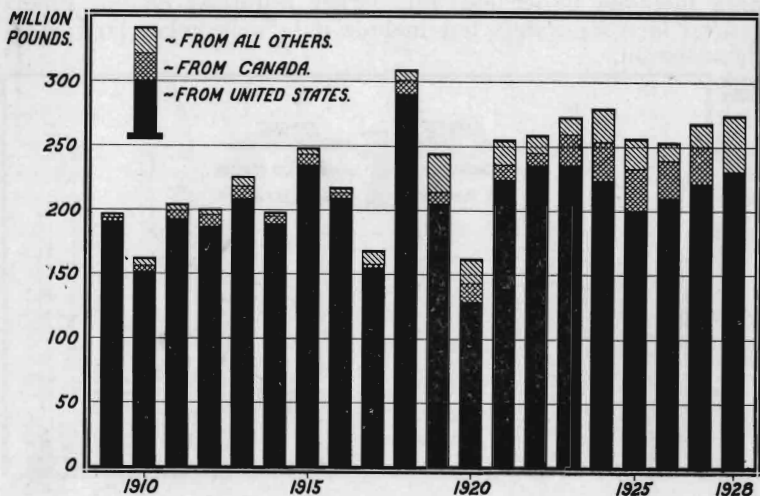


Fig. 14. Lard imports into the United Kingdom from the United States, Canada, and all other countries, annually, 1909-1928.

supplied from 96 to 100 percent of Cuba's imports every year from 1910 to 1928.

Figure 15 gives both the imports and exports of lard by the Netherlands since 1909. The exports and imports are shown by opposite bars for each year in order to give a better picture of the foreign trade. From 1909 to 1917, the Netherlands imported more lard than it exported, while since 1919 its exports have exceeded its imports. Most of its imports during this period, however, have come from the United States. This is significant since these imports are resold to other deficit countries, mainly Germany and the United Kingdom. Small amounts are also sold to Belgium, France, Austria-Hungary and Czechoslovakia and a few other countries.

Instead of carrying the analysis by individual countries any further, the combined imports into Italy, France, Belgium, Switzerland, Norway and Sweden are given in fig. 16. It shows that the greater part of the lard imports to these countries comes from the United States. It also shows that there is some intershipment between these countries and between them and the countries already analyzed, namely, Germany, the United Kingdom, the Netherlands and Cuba. The imports from other countries are not very important. Brazil supplies some to Italy and a small quantity to France, and Canada furnishes small amounts to France and Belgium.

The foreign trade in neutral lard will not be analyzed in detail. Foreign trade statistics of the United States for this product are available only since 1911. Prior to that time, neutral lard exports were included under oleo oil. Other countries do not report neutral lard separately but include it in some other lard or oil classification.

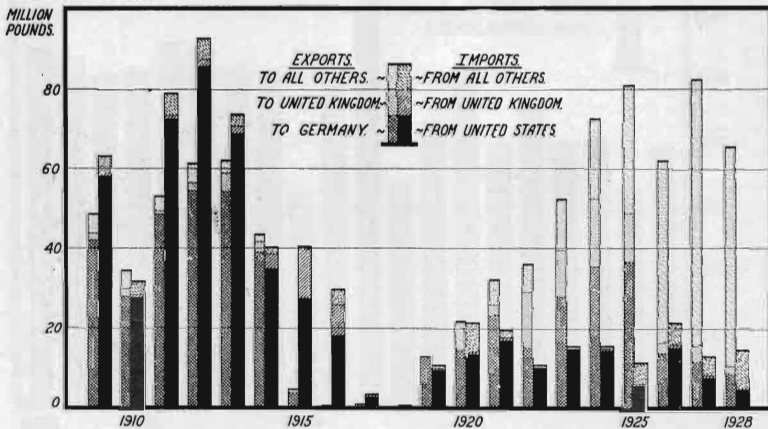


FIG. 15. Lard imports into the Netherlands from the United States, the United Kingdom, and all other countries, and lard exports from the Netherlands to Germany, the United Kingdom, and all other countries, annually, 1909-1928.

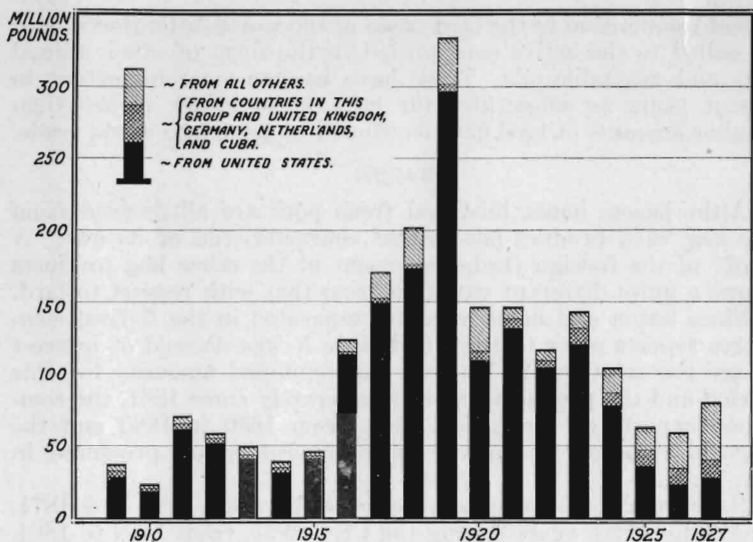


Fig. 16. Combined lard imports into Italy, France, Belgium, Switzerland, Norway and Sweden from the United States, from one country to another within the group, or from Germany, the United Kingdom, the Netherlands, and all other countries, annually, 1909-1928.

The annual exports of neutral lard from the United States normally amount to from 20 to 25 million pounds. A number of countries of northern and central Europe receive it, the largest importers being the Netherlands, Germany and the United Kingdom in the order named.

The significant conclusion to be drawn from examining the world's trade in lard is that the United States is the outstanding surplus lard producer in the world. In the period just prior to the World War we furnished about 97 percent of the lard entering world commerce, during the war years and up to 1920, about 92 percent and since 1921 about 93 percent. From 1910 to 1916 China produced lard for the world market in quantities about equal to all other countries combined, exclusive of the United States. Since 1917 a smaller proportion of the surplus going into world trade has been furnished by China, whose supply has decreased rather markedly since 1922. Her outlets are the United Kingdom, Singapore, Russia and Hong Kong. Prior to 1917 Brazil had no net exports of lard, but since that time Brazilian exports have equaled and frequently exceeded those of China. The Netherlands has been in the surplus producing class since 1919, as indicated in fig. 15. Canada, Denmark and Australia usually supply small amounts of surplus lard. These amounts are small, but they represent competition for the United States in the foreign market.

Despite the fact that the United States does not have much

direct competition in the lard trade of the world, attention should be called to the active competition in the form of other animal fats and vegetable oils. These have become more important in recent years as substitutes for lard, altho larger rather than smaller amounts of lard have continued to move into world trade.

BACON

Altho bacon, hams, lard and fresh pork are all derived from the hog, each product has market characteristics of its own. A study of the foreign trade movement of the other hog products shows a quite different situation from that with respect to lard.

Since bacon and hams were not separated in the federal commerce reports prior to 1881, and since it was deemed of interest to see the relationship between the combined amounts for this period and the products reported separately since 1881, the combined exports of bacon and hams from 1850 to 1880 and the exports of bacon and hams shown separately are presented in fig. 17.

Bacon and ham exports were small between 1850 and 1871, except for three years during the Civil War, from 1862 to 1864, inclusive, when they were about treble the normal amount.

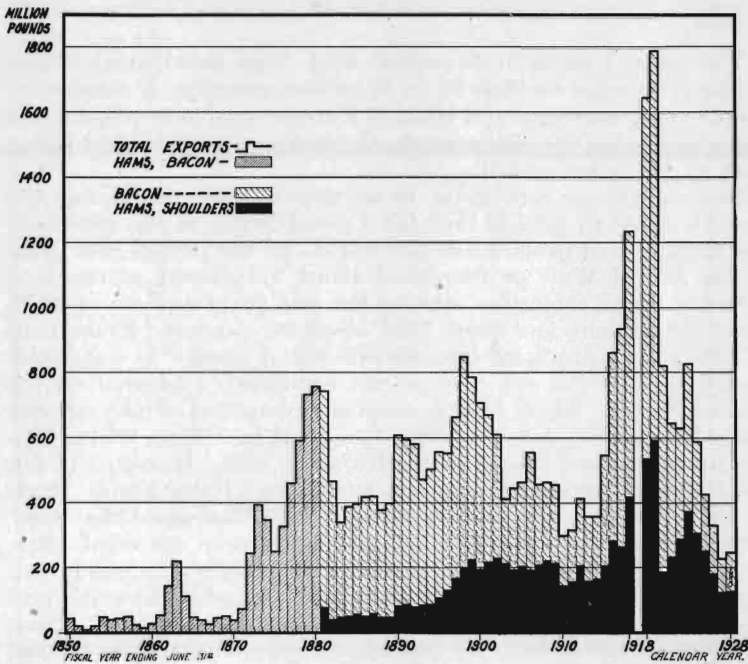


Fig. 17. Combined exports of bacon and hams from 1850 to 1880 and exports of bacon and hams shown separately, annually, 1881-1928.

Beginning in 1872 bacon and ham exports increased very rapidly. In 1871 total exports of bacon and ham were 71 million pounds; in 1872, 246 million pounds, and in 1880, 760 million pounds. We have no way of knowing what portion of these totals were represented by each, but from an analysis of the export statistics since 1881, in which bacon and hams are reported separately, we are quite justified in concluding that bacon constituted the major portion of the combined exports designated as bacon and ham.

There was an upward trend of bacon exports from 1883 to 1900. From 1903 to 1914 inclusive, exports were relatively small. The World War stimulated bacon exports. In 1914 we sold 194 million pounds of bacon abroad; in 1915, 1916, 1917, 1918 and 1919 we exported 347, 580, 667, 815 and 1,190 million pounds respectively. Heavy reductions in bacon exports have occurred since, only 106 million pounds being sold abroad in 1927, the smallest amount since 1871.

Discussion of the annual exports of hams and shoulders shown in fig. 17 will be made in a later section.

Figure 18 presents the annual bacon exports from the United States to its principal buyers. The bacon exports to the United Kingdom as shown in fig. 18 exhibit distinct periodicity, which coincides in time quite closely with the periodicity of the exports of lard but is much more pronounced. The high points in the bacon exports to the United Kingdom were in 1881, 1890, 1898, 1906 and 1919. Bacon exports to the other countries are relatively

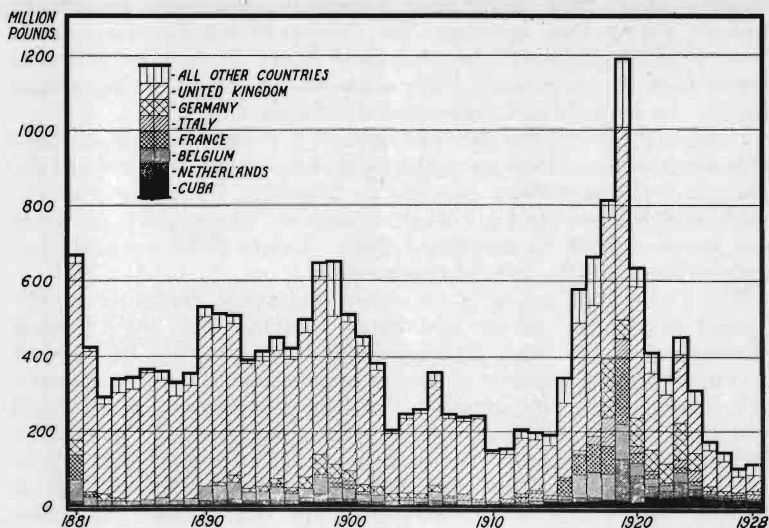


Fig. 18. Bacon exports from the United States, annually, by principal countries of destination, 1881-1928.

unimportant in comparison. Germany took nearly 40 million pounds in 1881. This amount declined to half a million pounds in 1885 and remained below 3 million pounds until 1890. Exports then increased slightly until 1898 from which date bacon exports to Germany again began to decline. Since 1908 they have been unimportant.

Belgium has been a steadier customer for bacon than Germany and over most of the period under consideration took more of our exports. Beginning in 1916 bacon exports to Belgium increased very rapidly, reaching the high point of 91 million pounds in 1919, after which they declined and in 1927 amounted to less than 3 million pounds.

Bacon exports to France were unimportant until 1915 (except for the year 1881) when they amounted to 45 million pounds. The increase continued until 1919 when France took 178 million pounds. In 1920 sales to France dropped to 25 million pounds and have continued to decrease since, constituting less than one million pounds annually since 1925.

The exports of bacon from the United States for the same period to the Netherlands, Cuba and Italy as shown in fig. 18 are not very important, altho they increased somewhat during the latter part of the war and decreased after 1920. All other countries take normally less than 50 million pounds.

When we study pork exports by decades, we see that bacon and ham exports increased from an annual average of 29 million pounds in the '50's to 376 million pounds during the '70's. Bacon exports since 1881 have been irregular and have tended to decrease rather than increase. The exports of hams and shoulders from 1881 to 1928 will be discussed later. It is interesting to notice that bacon exports have continued to be more important during the period than hams and shoulders.

Figure 19 shows the percentages of the total annual exports of bacon and hams that go to the United Kingdom, Cuba, Canada, Germany, the combined exports to Belgium, Italy, the Netherlands and France, and all other countries. The exports of hams and bacon cannot be separated from 1850 to 1879 because they are combined in the foreign trade reports.

The United Kingdom is the most important customer of the United States for bacon and hams. During the '50's it took 78 percent, in the '60's, 84 percent and in the '70's, 61 percent of our combined exports of bacon and hams. No other country was outstandingly important. The bacon exports to the United Kingdom when measured by decades show a fairly consistent decline in importance. An average of 83 percent went to the United Kingdom in the '80's and 77 percent in the '90's. An increase to 80 percent occurred during the decade beginning in 1900. During the decades beginning in 1910 and 1920 the

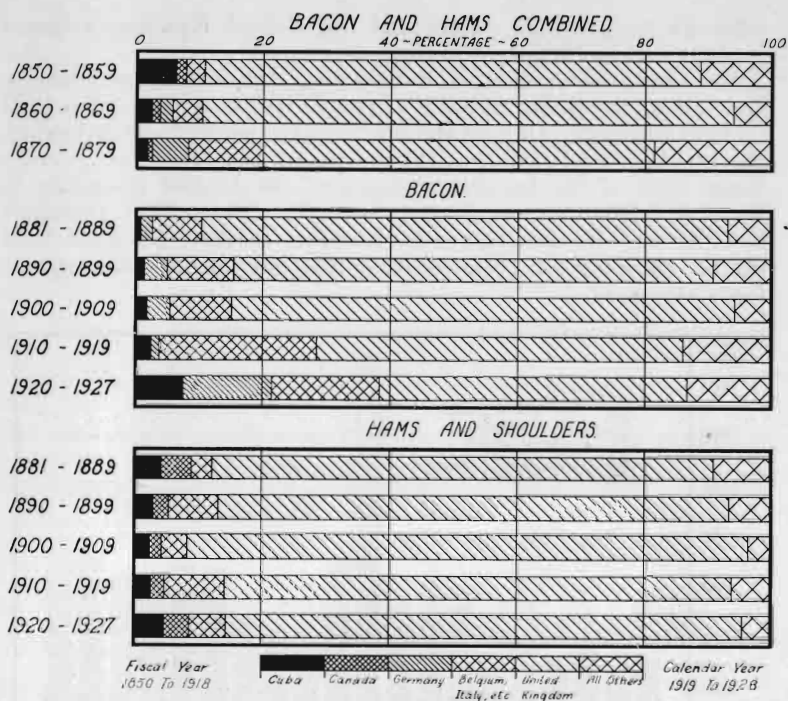


Fig. 19. Percentages of total exports of the United States by decades of bacon and hams combined from 1850 to 1870, and for bacon and hams separately between 1881 and 1928 sold to the United Kingdom, Cuba, Canada, Germany, combined countries of Belgium, Italy, the Netherlands, France, and all other countries.

United Kingdom took 58 and 49 percent respectively of our exports of bacon. Germany took small amounts up until 1920 but purchased on the average nearly 14 percent between 1920 and 1927. The combined exports to Belgium, Italy, the Netherlands and France amounted to 25 percent between 1910 and 1919 and 18 percent since 1920. No other country is very important, altho Cuba has taken over 7 percent of our bacon exports since 1920.

Since the United Kingdom is our most important customer for bacon an examination of its import trade as shown annually from 1909 to 1928 in fig. 20 will be of interest. Between 1909 and 1914 inclusive, the United Kingdom obtained an average of 37 percent of its bacon imports from the United States, ranging from 30 percent in 1914 to as high as 47 percent in 1909. From 1915 to 1920 inclusive, we supplied from 53 to 83 percent of its bacon purchases. The proportion of the United Kingdom's bacon imports obtained in the United States has continually decreased since 1918, when it reached the high point of 83 percent. During

1925 we supplied 21 percent of the United Kingdom's bacon imports and in 1926 only 15 percent.

Denmark, our principal competitor, supplied approximately one-half of the bacon imports of the United Kingdom from 1909 to 1914 inclusive. During the war and the period just following, the Danish supply continually decreased and amounted to only 2 per cent of the bacon purchases of the United Kingdom in 1918 and less than 1 percent in 1919. Since 1920 Denmark has increased its importance in the bacon market, and since 1924 the United Kingdom obtained more than half of its bacon imports from Denmark.

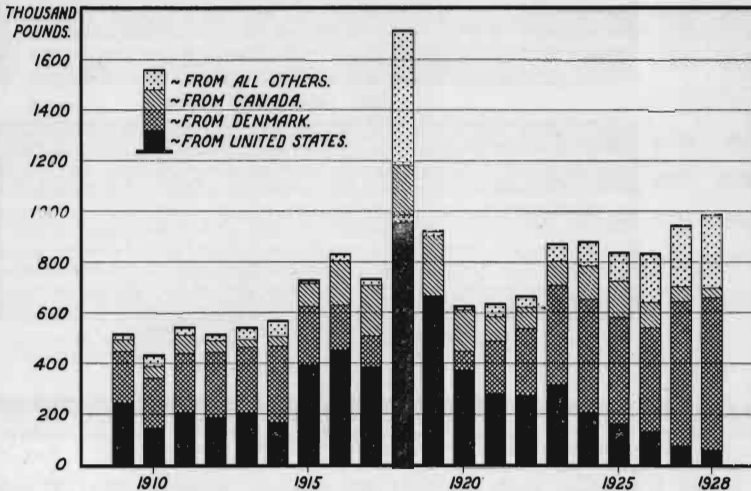


Fig. 20. Imports of bacon into the United Kingdom from the United States, Denmark, Canada, and all other countries, annually, 1909-1928.

The high quality of Danish bacon makes it more in demand in the United Kingdom than bacon from the United States. Figure 21 shows the comparative prices of Danish, Irish, Canadian and American bacon at Bristol, England, from 1909 to 1928 inclusive. It shows that Irish bacon is quoted highest, with Danish, Canadian and American bacon in the order named. Since 1920 American bacon has sold on the average approximately 5½ cents a pound below Danish bacon and 8 cents below Irish bacon. The price differentials between American bacon and Danish and Irish bacon on the English market were less from 1909 to 1919 as shown by fig. 21. It must be noted, however, that the price of bacon was lower during the greater part of this period than during the period that followed.

The annual exports of bacon from Denmark from 1910 to 1928 are shown in fig. 22. The United Kingdom was almost the

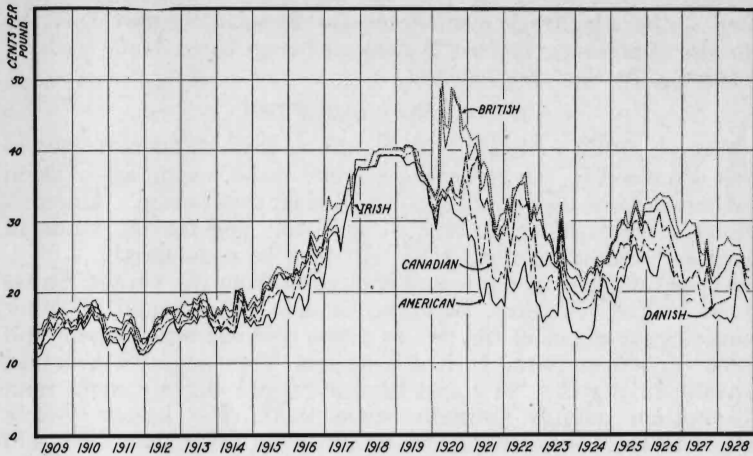


Fig. 21. Bacon: Prices in cents per pound of American, Canadian, Danish and Irish Wiltshire sides at Bristol, England, by months, 1909-1928.

exclusive buyer. Small amounts were sold to Germany between 1914 and 1920, and a little was sold to Sweden in 1917 and 1918.

Figure 23 gives the bacon imports into Germany from 1909 to 1928. Bacon imports were small prior to the war, and data are not available during the war period. Since 1920 practically all bacon imports into Germany came from the United States, with very small amounts from the Netherlands.

It has been shown that American bacon trade has very keen competition with Danish and Canadian bacon in the English

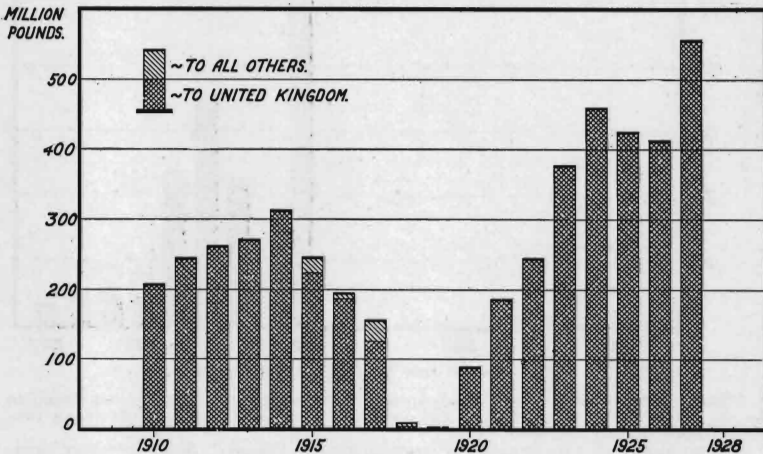


Fig. 22. Bacon exports from Denmark, annually, 1910-1928.

market.¹⁶ The higher quality of Danish and Canadian bacon gives it the advantage over American bacon. We may look for this discrimination against American bacon to continue as long as the quality differences exist.

HAMS AND SHOULDERS

Foreign trade in hams and shoulders from 1850 to 1880 has been discussed in the preceding section under bacon, since bacon and hams were reported together during this period. Amounts exported were shown in figs. 17 and 19. The foreign trade in hams and shoulders since 1881 will now be considered.

Annual exports of hams and shoulders from the United States to the United Kingdom, Belgium, Canada, France and all other countries are given in fig. 24. It shows that the bulk of ham and bacon exports go to the United Kingdom. These exports increased rapidly during the '90's and have averaged slightly more than 175 million pounds annually since 1900. The largest yearly export to the United Kingdom was in 1918 when we sold it 470 million pounds of hams and shoulders.¹⁷ Ham imports into the United Kingdom have continually decreased since 1923. Canada is the principal competitor of the United States in the ham market of the United Kingdom. No other one country takes a large quantity of hams. Canada and Belgium take small amounts

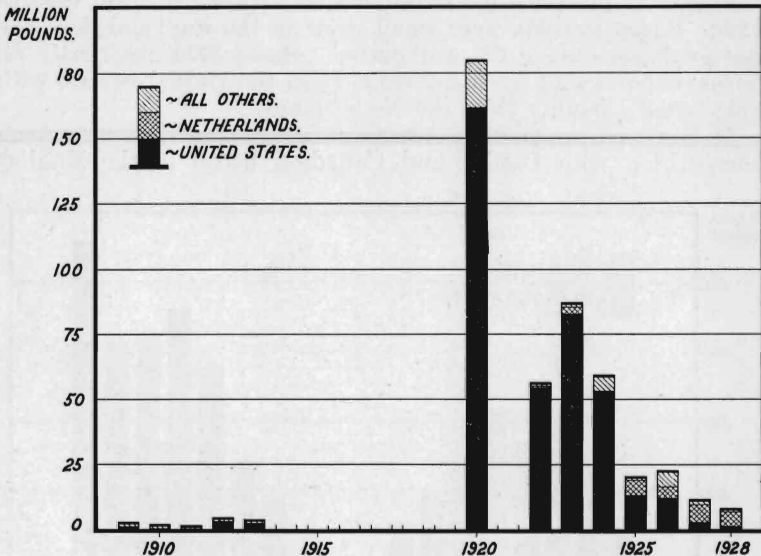


Fig. 23. Bacon imports into Germany, annually, 1910-1928.

¹⁶The Irish Free State, established April 1, 1923, is included with United Kingdom for the entire period, consequently the competition of Irish bacon is not taken into consideration in this analysis.

¹⁷From 1881 to 1908 these products were reported as "Hams." Since 1909 they have been reported as "Hams and Shoulders." They will be referred to here as "Hams."

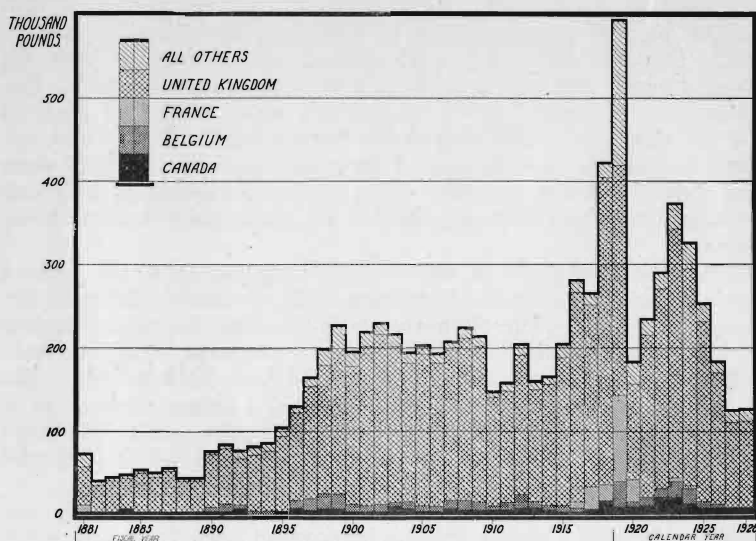


Fig. 24. Ham and shoulder exports from the United States to the United Kingdom, Belgium, Canada, France and all other countries, annually, 1881-1928.

annually. France purchased a considerable quantity from 1916 to 1920 inclusive. More than two dozen other countries take small amounts.

FRESH PORK

The fresh pork trade of the United States is very small as compared with exports of lard, bacon, hams and shoulders. During the last five years fresh pork reached approximately two percent of the total pork exports while prior to this period the proportion was considerably less.

Figure 25 shows the average annual fresh pork exports of the United States from 1891 to 1928. Fresh pork exports increased from practically none during the '80's to an average of 34 million pounds from 1920 to 1928.

The United Kingdom took approximately 95 percent of our fresh pork exports during the two decades between 1890 and 1909. During the decade beginning in 1910 the United Kingdom purchased only 37 percent of our exports while Canada took 53 percent. Between 1921 and 1928, 46 percent of our fresh pork exports went to the United Kingdom, 25 percent to Canada, 5 percent to Cuba and 24 percent to other countries.

The annual exports of fresh pork from the United States and the amounts sold to the United Kingdom, Canada, Cuba and all other countries are shown in fig. 25. Between 1910 and 1915, fresh pork exports averaged less than 3 million pounds, with Canada taking more than the United Kingdom. More than 60

million pounds were exported in 1916 and 50 million pounds in 1917. Exports decreased to 21 million pounds during 1918, increased again and reached 56 million pounds during 1921. Exports have decreased quite consistently since 1921 and reached the low figure of 8 million pounds during 1927. Since 1924, exports to Canada have decreased materially and during 1927 were less than 1 million pounds. The United Kingdom is now our principal customer, but our market for fresh pork is very unimportant.

Fresh pork imports to the United Kingdom from the United States, the Netherlands, Argentina, and all other countries are shown in fig. 26. The Netherlands is the most important source of fresh pork for the United Kingdom. Imports from the Netherlands ceased entirely during the period from 1916 to 1919. The United States and Denmark have supplied a larger proportion of the fresh meat purchases of the United Kingdom since 1920 than prior to 1916. Argentina supplied some from 1914 to 1923 and China furnished small amounts annually prior to 1924.

Fresh pork exports from the United States to Canada are given in fig. 25. Canada obtains little fresh pork from any other country. Our highest exports, 74 million pounds, were in 1918. The amount fell to 2 million pounds during 1919 and increased again to 46 million pounds during 1920. Canadian imports have been decreasing since 1920.

The fresh pork trade of the world is not very important. Naturally, it is restricted because of the perishability of the product.

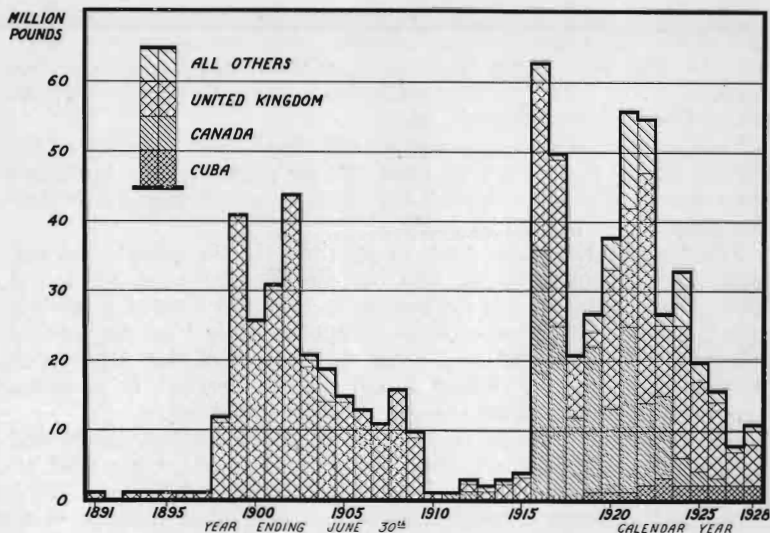


Fig. 25. Fresh pork exports from the United States to the United Kingdom, Canada, Cuba, and all other countries, annually, 1891-1928.

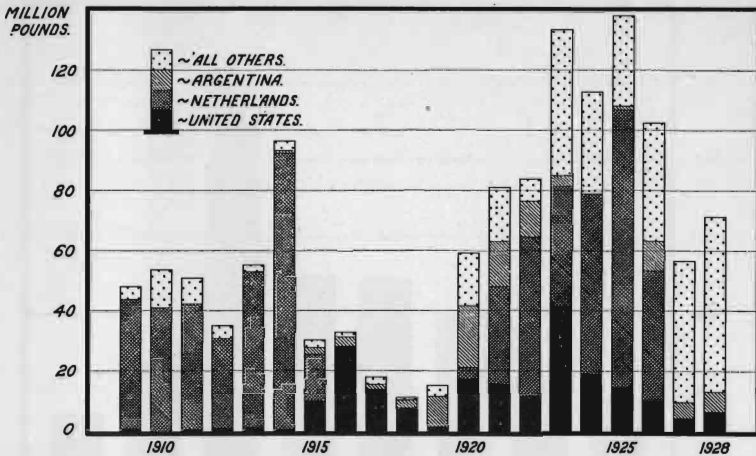


Fig. 26. Fresh pork imports into the United Kingdom from the United States, the Netherlands, Argentina, and all other countries, annually, 1909-1928.

With hog production increasing in Canada, we may look towards a still more limited market for fresh pork from the United States.

CANNED PORK

Lard, bacon, hams and shoulders, fresh, pickled and cured pork constitute the principal classes of pork products in our export trade. The United States exports canned pork to a very limited extent. Normally, the canned pork exports of the United States vary from 2 to 5 million pounds, annually. The United Kingdom is our most important customer, taking approximately 75 percent of the total. Small amounts go to more than a dozen other countries.

It seems hardly worth while to attempt a detailed analysis of this trade. Moreover, the classification used by some countries will not permit a satisfactory analysis. Some countries report "canned meats" without specifying the kind. "Preserved meats" is listed by other countries. We have no way of telling whether these are canned, or prepared in some other way, or what kind of meat is involved.

PICKLED PORK

The United States has been a continual exporter of pickled pork since 1850. In the early part of the period this product was relatively more important than later because much more pork is now cured and smoked instead of pickled. Figure 27 gives the pickled pork exports of the United States, by decades, since 1850. The average annual exports during the '50's was 37 million

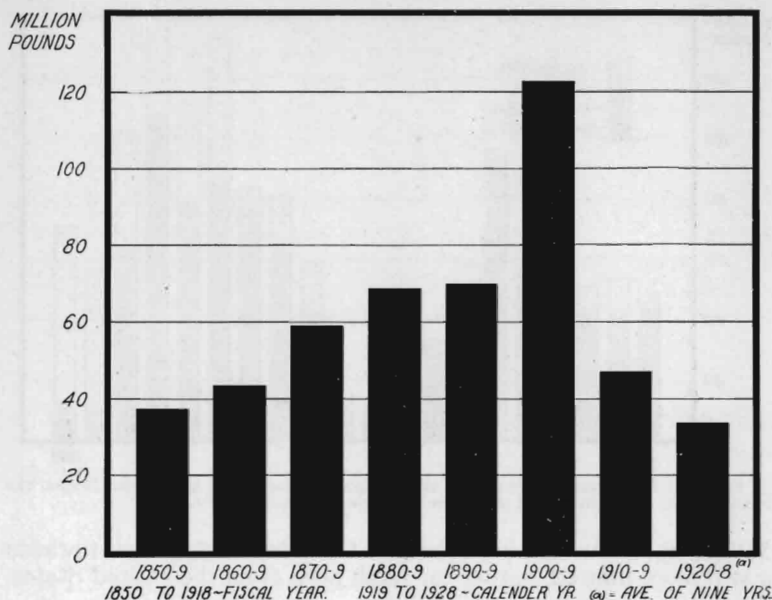


Fig. 27. Average annual pickled pork exports from the United States by decades, 1850-1928.

pounds. The quantity increased every decade up to 1909. During the 10-year period, 1900 to 1909, the average annual exports of pickled pork amounted to 122 million pounds. Since 1908, the United States' exports have been less than for the 40 years preceding.

The United Kingdom, Canada, British West India and Honduras combined have taken between 50 and 65 percent of our annual exports of pickled pork every decade since 1870. The United Kingdom was our most important customer up until 1910

TABLE XIII—PICKLED PORK EXPORTS FROM THE UNITED STATES BY DECADES IN THOUSAND POUNDS.

	British W. India and British Honduras	United Kingdom	Canada	All other countries	Totals
1850-1859	5,918	5,012	6,872	19,075	36,877
1860-1869	5,599	5,323	4,873	27,196	42,991
1870-1879	6,792	17,026	11,438	23,944	59,200
1880-1889	7,324	24,356	18,723	27,038	77,441
1890-1899	8,764	19,396	10,848	38,726	77,734
1900-1909	6,223	60,002	8,629	47,571	122,425
1910-1919	4,522	8,213	11,592	22,155	46,482
1920-1928*	3,050	4,052	9,312	16,847	33,261

*Average of nine years.

Source: U. S. Foreign Trade and Navigation Reports.

as shown in table XIII. Since then, Canada has taken more than the United Kingdom. No single country, excepting these, takes very much. However, pickled pork exports of the United States go annually to more than 50 countries.

We shall examine more closely the foreign trade in pickled pork since 1909. Figure 28 shows the annual exports of pickled pork from the United States to the United Kingdom, Canada, Cuba and all other countries. It will be noticed that the exports have been steadily decreasing during the period. No one country is very important in this trade. Canada, however, has quite consistently taken more than any other country. In the group classed as "all other countries" are included approximately 50 countries that obtain pickled pork from the United States.

Figure 29 gives the annual imports of pickled pork to the United Kingdom from the United States, Denmark and all other countries. Between 1909 and 1914 these imports into the United Kingdom amounted to between 25 and 30 million pounds annually. Since 1915 the annual imports have been small, usually running less than 5 million pounds. From 1909 to 1914 Denmark supplied about four-fifths of the pickled pork imported to the United Kingdom. From 1916 to 1921 Denmark supplied practically none of the pickled pork purchased by the United Kingdom. Since 1922 Denmark has supplied slightly more than the amount furnished annually by the United States.

Nearly all of the imports of pickled pork into Canada come from the United States. Since 1914, the annual imports have been between 10 and 15 million pounds. Attention should be called to the fact that Canada also exports pickled pork. Since

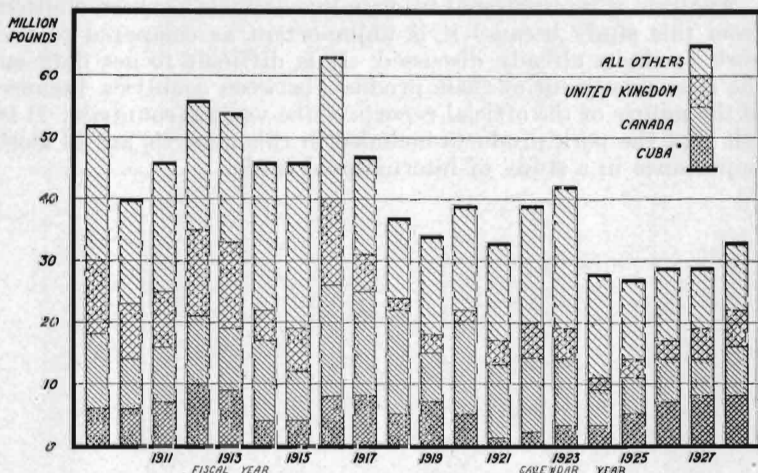


Fig. 28. Pickled pork exports from the United States to the United Kingdom, Canada, Cuba, and all other countries, annually, 1909-1928.

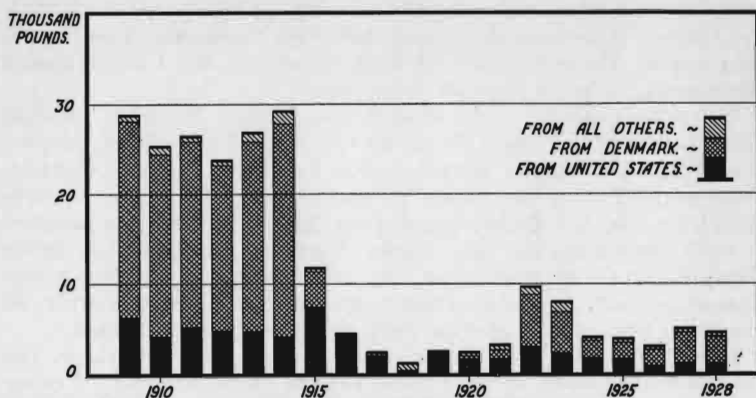


Fig. 29. Pickled pork imports into the United Kingdom from the United States, Denmark, and all other countries, annually, 1909-1928.

1920 she has exported annually from 15 to 20 percent as much as she imported. During 1919 her exports were more than twice as great as her imports. Prior to 1918 it is not possible to determine the actual exports of pickled pork from Canada because the Canada Trade and Navigation reports, giving the official foreign trade statistics, combined fresh, chilled or frozen and pickled pork, and listed them as "pork."

Cuba obtains practically all of its pickled pork from the United States. Annual imports have ranged in increasing quantities between 14 and 40 million pounds since 1910.

Analysis of international trade in live animals has been omitted from this study because it is unimportant as compared to the pork products already discussed. It is difficult to get data on the inter-movement of these products between countries, because of the nature of the official reports of the various countries. It is felt that the pork products included in this analysis are of most importance in a study of international trade.

APPENDIX

TABLE I—HOG RECEIPTS (Numbers)

Calendar years	Nine Western markets*	New York, Boston Philadelphia, Baltimore	Heavy hog prices at Chicago ** 1878-1927
	(000)	(000)	
1866	962		
1867	1,697		
1868	1,707		
1869	1,662	1,496	
1870	1,693	1,568	
1871	2,380	2,211	
1872	3,253	3,051	
1873	4,438	3,550	
1874	4,757	3,059	
1875	4,094	2,243	
1876	4,524	2,133	
1877	4,452	2,165	
1878	7,173	2,948	\$3. 75
1879	7,612	3,006	3. 70
1880	8,322	3,095	4. 85
1881	8,798	2,949	6. 35
1882	7,425	2,639	7. 65
1883	7,864	3,012	6. 20
1884	8,160	3,077	5. 75
1885	10,596	3,301	4. 30
1886	10,389	3,569	4. 30
1887	9,777	3,665	5. 20
1888	9,614	3,597	5. 70
1889	10,988	3,999	4. 30
1890	14,304	4,660	3. 90
1891	14,318	5,097	4. 30
1892	13,307	4,656	5. 00
1893	11,013	3,835	6. 55
1894	14,428	4,288	5. 05
1895	13,620	4,209	4. 35
1896	13,942	4,452	3. 40
1897	16,055	4,260	3. 65
1898	18,247	4,459	3. 85
1899	17,613	4,556	4. 05
1900	18,324	3,988	5. 05
1901	20,135	3,657	5. 90
1902	17,291	3,508	6. 95
1903	16,861	3,630	6. 00
1904	17,816	4,217	5. 15
1905	19,262	4,231	5. 25
1906	18,939	4,022	6. 25
1907	19,251	4,281	6. 05
1908	22,677	4,797	5. 75
1909	18,926	4,061	7. 45
1910	15,582	3,261	8. 90
1911	20,720	3,929	6. 65
1912	20,382	5,436	7. 55
1913	20,576	4,154	8. 20
1914	19,044	2,672	8. 20
1915	21,840	3,948	7. 00
1916	26,781	4,935	9. 65
1917	22,360	3,308	15. 20
1918	26,607	3,890	17. 50
1919	26,237	3,813	17. 70
1920	23,187	4,254	13. 85

(Continued on next page)

TABLE I—HOG PRODUCTS (Continued)

1921	22,998	4,206	8.35
1922	24,601	4,949	9.05
1923	32,320	4,296	7.45
1924	32,612	3,587	8.25
1925	26,415	2,224	11.70
1926	23,414	2,136	11.95
1927	23,618	2,405	9.90

* Year each market began reporting: Chicago, 1866; East St. Louis, 1874; Kansas City, 1881; Omaha, 1884; Denver, 1886; South St. Paul, 1886; Sioux City, 1888; South St. Joseph, 1893; Fort Worth, 1902.

**Heavy Loz prices at Chicago, from Drovers' Journal Year Book of Figures.

Source: Column 1, U. S. Dept. of Agr. Statistical Bul. No. 18, Statistics of Hogs, Pork and Pork Products, Jan. 1927, p. 19. Column 2, 1869-1881, New York Produce Exchange, Annual Reports; 1882-1904, Current Price Grain Reporter Yearbook, 1905, p. 14; 1905-1924, Ibid, pp. 99 and 100. 1921, Ibid, p. 106.

TABLE II—PORK PRODUCTS, EXPORTS FROM THE
UNITED STATES 1851-1928
Pork and its Products—Total as far as ascertainable in pounds*

Year	Pounds (000 omitted)	Year	Pounds (000 omitted)	Year	Pounds (000 omitted)
1851	70,752	1891	1,179,566	1911	879,455
1852	43,705	1892	1,125,536	1912	1,071,952
1853	68,801	1893	893,002	1913	984,697
1854	134,433	1894	1,015,940	1914	921,913
1855	136,966	1895	1,092,025	1915	1,106,180
1856	135,609	1896	1,134,166	1916	1,462,697
1857	113,013	1897	1,302,038	1917	1,501,948
1858	85,952	1898	1,659,996	1918	1,692,124
1859	81,501	1899	1,678,266	1919	2,704,694
1860	107,083	1900	1,538,024	1920	1,762,611
1861	129,471	1901	1,462,370	1921	1,522,162
1862	321,606	1902	1,337,316	1922	1,516,326
1863	439,151	1903	1,042,120	1923	1,794,880
1864	271,597	1904	1,146,255	1924	1,934,189
1865	132,320	1905	1,220,032	1925	1,400,149
1866	97,756	1906	1,464,960	1926	1,172,685
1867	98,631	1907	1,268,065	1927	1,012,667
1868	136,905	1908	1,237,211	1928	1,046,279
1869	115,556	1909	1,053,142		
1870	99,417	1910	707,110		
1871	190,735				
1872	503,029				
1873	690,063				
1874	623,415				
1875	473,308				
1876	550,331				
1877	764,470				
1878	1,007,470				
1879	1,143,310				
1880	1,230,702				
1881	1,233,015				
1882	798,842				
1883	627,093				
1884	715,143				
1885	755,417				
1886	800,785				
1887	827,350				
1888	732,080				
1889	782,601				
1890	1,159,643				

*Includes lard; pork, canned; pork cured—bacon:
pork cured—hams; pork cured—salted or pickled;
pork, fresh; neutral lard.
Source: U. S. D. A. Yearbooks, 1911 and 1926.

TABLE III—EXPORTS OF HOG PRODUCTS FROM THE UNITED STATES

Fiscal year	Hams and bacon pounds	Year	Bacon pounds	Hams pounds	Year	Bacon pounds	Hams and shoulders pounds
1850	41,014,528	1881	673,274,361	73,670,184	1906	361,210,563	194,267,949
1851	18,027,302	1882	428,481,482	39,545,158	1907	250,418,699	209,481,496
1852	5,746,816	1883	294,118,759	46,139,911	1908	241,189,929	221,769,634
1853	18,390,027	1884	341,579,410	47,919,958	1909	244,578,674	212,170,224
1854	45,933,473	1885	345,924,217	54,202,902	1910	152,163,107	146,883,385
1855	38,188,989	1886	369,423,351	50,365,445	1911	156,675,310	157,709,316
1856	41,748,092	1887	364,417,744	55,505,211	1912	208,574,208	204,044,491
1857	43,863,539	1888	331,306,703	44,132,980	1913	200,993,584	159,544,687
1858	20,934,374	1889	357,377,399	42,847,247	1914	193,964,252	165,881,791
1859	25,844,610	1890	531,899,677	76,591,279	1915	346,718,227	203,701,114
1860	25,844,610	1891	514,675,557	54,410,108	1916	579,808,786	282,208,611
1861	141,212,786	1892	507,919,830	76,856,559	1917	667,151,372	266,656,581
1862	110,886,446	1893	391,758,175	82,178,154	1918	815,294,424	419,571,869
1863	218,233,609	1894	416,657,377	86,970,571	Calendar		
1864	110,886,446	1895	452,549,976	105,494,123	1918	1,104,788,081	537,213,041
1865	45,990,712	1896	423,352,187	129,036,351	1919	1,190,297,494	596,793,663
1866	37,588,930	1897	500,399,448	165,247,302	1920	636,675,572	185,246,755
1867	25,648,226	1898	650,105,933	200,185,861	1921	415,356,152	232,323,797
1868	43,639,064	1899	562,651,480	225,846,750	1922	341,838,745	289,613,175
1869	49,228,165	1900	512,153,729	196,414,412	1923	456,797,497	372,092,656
1870	58,908,236	1901	456,122,741	216,571,803	1924	286,627,810	305,109,973
1871	71,446,854	1902	383,150,624	227,653,232	1925	176,829,264	251,852,549
1872	246,208,143	1903	207,336,000	214,183,365	1926	147,505,128	183,717,751
1873	345,381,737	1904	249,665,941	194,948,864	1927	105,649,020	122,613,240
1874	317,450,453	1905	262,246,635	203,458,724	1928	147,887,000	124,149,000
1875	327,530,524						
1876	320,037,172						
1877	460,037,146						
1878	502,814,331						
1879	732,249,576						
1880	739,773,109						

Source: Commerce and Navigation Reports, 1850-1924, Monthly Summary of Foreign Commerce of the United States, 1925-1928.

TABLE IV—LARD, EXPORTS FROM THE UNITED STATES
(000 omitted) Pounds

Years ended June 30	Belgium	Denmark	*Germany	Italy	Netherlands	United Kingdom	Canada	Cuba	Total
1850	565		97		510	31,693	73	8,142	54,926
1851	75		1		3	6,624	184	7,836	19,683
1852	62		(1)		6	8,976	58	8,396	5,747
1853	72		(1)		9	9,725	273	9,306	21,282
1854	406		449		144	26,716	739	10,902	44,450
1855	439		517		279	15,350	572	11,183	39,025
1856	401		2,553		-----	13,138	1,899	11,500	37,582
1857	149		279		195	21,060	449	9,597	40,246
1858	152		533		171	10,286	302	14,425	33,022
1859	85		986		81	7,748	700	11,058	28,363
1860	30		(1)		5	17,282	1,823	11,783	40,290
1861	248		434		194	25,546	41	11,743	47,909
1862	2,018		12,424			53,533			118,573
1863	3,519		14,736	144		60,488			155,337
1864	2,892		5,185	4		25,679			97,191
1865	652		1,983	56	354	13,557		12,108	44,342
1866			362		97	9,351		10,905	30,110
1867	2,159		3,294		679	12,444		11,531	45,608
1868	4,943		10,180	3	1,511	21,621		12,909	64,555
1869	1,306		4,817		119	17,351		9,037	41,888
1870			681		14	10,950		12,233	35,809
1871	6,466		4,902		1,286	31,635		16,660	80,037
1872	17,658		40,673		8,562	78,763		18,677	199,652
1873	34,758		69,354		8,908	54,074		22,088	230,534
1874	28,174	1,199	64,437	336	4,300	43,011	6,100	22,186	205,526
1875	13,365	192	49,873	2	3,329	52,897	4,483	14,062	166,869
1876	15,247		47,895	2	4,254	50,772	6,443	12,925	168,406
1877	23,882	222	58,039		5,597	74,294	6,098	21,665	234,741
1878	28,039	2,896	85,353	118	7,326	114,485	3,012	23,154	342,668
1879	33,052	4,477	89,710	1,348	7,142	89,248	2,893	25,110	326,659
1880	36,973	6,617	85,509	4,652	7,343	112,833	9,330	22,024	374,979
1881	31,933	10,479	88,128	3,379	8,548	114,786	6,823	26,174	378,142
1882	21,300	6,533	55,468	2,289	4,503	80,517	5,023	15,279	250,368
1883	14,384	5,996	41,873	1,873	4,385	67,168	11,931	21,405	224,718
1884	23,960	4,149	50,998	2,835	2,543	88,575	17,455	18,499	265,095
1885	27,047	12,144	56,398	2,786	3,279	93,544	7,240	21,389	283,216
1886	25,229	11,423	62,024	2,422	2,403	94,589	7,855	22,192	293,728
1887	27,850	16,427	58,243	2,741	2,016	103,624	10,945	25,721	321,534
1888	30,435	11,888	53,024	6,241	1,872	95,051	12,563	27,504	297,740
1889	29,429	11,256	48,664	3,792	3,180	117,139	14,049	30,097	318,243
1890	43,970	14,003	116,528	2,524	11,312	150,808	5,371	33,142	471,034
1891	49,133	13,025	106,278	2,441	26,682	158,561	5,429	32,054	498,344
1892	31,218	12,403	110,968	2,044	42,498	124,952	6,065	43,982	460,046
1893	26,099	7,121	70,170	1,477	25,268	138,355	2,026	42,684	365,694
1894	32,922	7938	96,010	840	39,912	149,692	2,431	42,341	447,567
1895	38,163	6,952	104,121	626	28,457	184,252	2,211	30,673	474,895
1896	30,182	7,474	121,894	839	32,999	201,924	6,835	26,218	509,534
1897	29,827	4,295	166,192	2,275	61,182	192,116	5,061	25,717	568,316
1898	36,251	9,207	233,845	3,837	63,663	241,078	6,427	20,140	709,344
1899	37,308	10,537	229,230	7,483	74,865	204,646	6,757	27,292	711,260
1900	25,666	11,435	195,596	4,346	72,129	217,487	489	34,736	661,814
1901	31,497	10,834	182,390	3,222	51,834	211,265	2,954	38,304	611,358
1902	30,405	11,480	173,518	2,349	53,269	199,443	1,369	25,374	556,840
1903	23,702	8,578	148,962	3,375	42,002	196,459	1,030	20,380	490,756
1904	25,783	8,208	177,842	3,799	71,624	199,016	1,117	19,667	561,303
1905	37,722	10,955	188,090	3,135	63,408	228,679	1,382	24,246	610,239
1906	31,070	14,987	240,278	1,840	80,038	241,904	7,697	35,428	741,517
1907	29,541	15,425	282,950	2,844	64,404	225,983	6,733	31,345	627,560
1908	18,193	15,388	184,722	5,007	55,976	205,789	11,762	27,549	603,414
1909		7,181	176,978	3,764	48,194	198,429	12,000	24,194	528,723
1910	9,060	4,503	93,393	2,293	23,758	161,331	9,310	33,239	362,928
1911	19,900	1,496	151,620	5,781	33,221	165,412	6,356	34,969	476,108
1912	21,744	3,130	159,474	3,171	38,675	186,125	7,968	42,549	532,256
1913	18,762	1,812	160,862	6,106	43,384	168,380	11,080	46,526	519,025
1914	15,915	1,464	146,209	5,959	43,470	164,633	15,996	49,610	481,458
1915	5,129	72,057		4,123	22,245	189,350	7,722	45,349	475,532
1916	70,132	2,874		3,488	13,282	192,076	6,330	53,812	427,011
1917	96,761	841		4,982	20,446	178,111	5,376	48,733	444,770
1918	116,154	75		2,137		159,959	894	52,574	392,506

(Continued on next page)

TABLE IV)—LARD EXPORTS FROM THE UNITED STATES (Continued)
(000 omitted) Pounds

Calendar Years	Belgium	Denmark	*Germany	Italy	Netherlands	United Kingdom	Canada	Cuba	Total
1919	155,802	33,505	39,495	2,463	68,597	219,213	5,090	44,766	760,902
1920	55,021	6,329	127,836	23,154	91,298	128,683	12,730	65,721	621,250
1921	51,565	9,506	278,045	11,745	76,965	231,846	12,706	72,311	868,942
1922	43,971	4,934	223,760	15,937	29,803	237,206	11,686	80,878	766,950
1923	47,261	6,271	376,789	52,962	68,706	233,518	15,367	90,100	1,035,382
1924	32,556	7,159	308,541	63,135	66,150	**237,383	11,455	93,945	944,095
1925	16,680	4,013	193,004	28,507	36,944	214,813	10,595	76,973	688,829
1926	11,796	3,678	199,534	5,901	48,365	**225,067	12,583	79,654	698,961
1927	12,716	2,744	184,738	12,190	37,764	220,743	15,389	80,120	681,303
1928	14,216	2,173	179,859		38,913	235,616	17,389	83,606	759,722

Source: 1910-1918, U. S. D. A. Yearbook, 1924. 1919-1924, Trade Information Series No. 26, 1925-1926, U. S. Commerce and Navigation Reports, 1925 and 1926. 1927 Monthly Summary of Foreign Commerce.

*Figures 1850-1871 inclusive include House Towns, Bremen, Hamburg and North German Union according to early classification.

**Includes Irish Free State.

TABLE V—BACON, EXPORTS FROM U. S. (000 omitted) Pounds

	Belgium	France	Italy	Netherlands	Norway	United Kingdom	Canada	Cuba	Germany	Total
1881	61,122	64,730	138	6,707		471,461	8,149	4,076	39,879	673,274
1882	10,661	4,777		2,510		384,103	8,738	2,350	3,483	428,481
1883	12,365	114		2,770		242,463	7,164	2,278	14,004	294,119
1884	11,991	2,748		1,225		282,792	29,896	1,891	2,355	341,579
1885	9,475	32		1,930		297,818	21,868	2,220	666	345,924
1886	13,211	40	1	1,997		337,329	3,952	2,720	1,702	369,423
1887	18,713	51	2	1,222		310,602	15,158	3,300	2,100	364,418
1888	14,407	12		348		274,932	28,633	3,320	1,300	331,307
1889	17,462	38	9	827		299,892	28,915	3,218	562	337,377
1890	36,731	67		11,689		450,466	4,331	2,106	531,900	
1891	38,933	32		11,736		413,850	11,592	5,774	514,676	
1892	46,301	1,437	54	11,680		402,091	16,299	5,424	15,717	509,920
1893	25,731	12		6,283		335,075	3,298	6,977	8,106	391,758
1894	25,791	663	25	7,739		346,210	10,266	6,154	12,538	416,658
1895	38,323	9,297		8,200		344,271	5,296	5,138	13,160	452,550
1896	20,168	3,614	11	8,383		386,457	7,031	6,168	9,087	425,352
1897	25,579	3,371	177	11,563		395,474	10,792	10,582	26,878	500,389
1898	47,386	4,543	4,543	20,688		473,202	19,697	10,736	51,524	650,109
1899	29,520	12,366	12,436	10,015		395,474	9,754	11,353	36,014	652,651
1900	27,813	12,222	10,094	7,876		369,082	2,297	12,309	26,027	512,154
1901	20,099	2,755	5,252	5,829		393,680	4,362	5,617	18,374	456,123
1902	21,362	845	1,770	5,747		310,381	5,733	4,111	20,001	383,151
1903	11,349	448	1,836	3,764		162,550	4,136	3,316	13,705	207,336
1904	11,998	913	4,575	2,142		196,823	5,443	3,735	11,536	249,666
1905	12,554	46	1,977	6,293		213,397	2,453	5,276	9,231	262,247
1906	23,261	113	1,200	11,714		280,281	2,416	5,134	14,625	361,211
1907	13,342	16	4,306	5,210		201,071	2,236	6,190	3,041	250,419
1908	10,339	4,093	11,365	4,671		192,932	1,396	4,390	535	241,190
1909	6,312	290	4,642	2,008		214,044	1,898	6,376	713	244,579
1910	2,206	23	1,605	1,065	330	133,995	1,838	7,046	278	152,163
1911	3,547	1,711	6,529	4,351	3,784	116,405	1,691	6,224	828	156,675
1912	9,418	8,156	8,156	4,560	4,560	147,449	3,842	4,823	1,313	200,574
1913	9,141	2,097	11,781	7,639	4,054	138,133	6,868	13,734	3,434	200,994
1914	5,110	197	9,732	1,718	5,459	132,820	11,083	13,360	170	193,964
1915	5,737	44,712	1,629	8,285	11,518	201,043	10,025	13,734	275	346,718
1916	60,161	52,501	10,532	12,846	22,387	339,341	39,591	13,543	579,809	
1917	65,220	77,036	19,378	10,625	8,296	346,758	118,710	14,915	667,152	
1918	68,670	73,532	74,460	10,625	25	42,837	42,837	20,294	815,294	1,190,297
1919	90,823	178,431	48,128	112,029	26,152	505,926	34,253	15,957	53,450	
1920	35,086	25,041	18,845	61,759	6,760	344,556	12,474	15,957	76,035	636,676
1921	20,773	12,195	9,108	28,830	11,110	204,980	13,981	27,241	54,134	415,356
1922	17,104	2,512	1,283	18,419	8,311	182,590	11,118	23,860	341,859	
1923	22,238	14,773	20,005	43,470	11,992	179,907	9,916	25,561	96,382	456,797
1924	9,713	9,353	29,973	20,137	8,957	129,102	5,827	28,673	45,517	314,103
1925	5,253	546	6,901	4,376	8,564	(2) 95,129	3,208	22,673	14,779	176,829
1926	3,796	924	757	4,976	8,957	(2) 81,008	4,673	20,601	9,982	147,505
1927	2,602	588	2,679	4,229	4,747	(2) 42,480	4,074	21,183	8,820	105,649
1928	1,672	326	12,579	784	1,729	43,502	5,602	17,862	7,605	117,887

(2) Includes Irish Free State.
Source: 1910-1924 U. S. D. A. Yearbooks.

TABLE VI—HAMS AND SHOULDERS, EXPORTS FROM U.S. BY COUNTRIES OF DESTINATION. 1881-1928. (000 omitted) Pounds

	United Kingdom	Belgium	Canada	France	All other countries	Total
1881	47,614	3,448	1,711	3,375	17,522	56,148
1882	30,936	768	2,227	574	5,040	34,505
1883	37,645	500	1,853	139	6,003	40,137
1884	38,390	315	3,556	68	5,591	42,329
1885	45,610	793	2,417	13	5,370	48,833
1886	39,689	1,312	3,238	14	6,112	44,253
1887	47,228	699	2,310	23	5,245	50,260
1888	35,712	851	2,779	17	4,774	39,359
1889	34,867	549	2,170	14	5,247	37,600
1890	64,878	5,038	1,577	52	5,046	71,545
1891	68,084	7,367	2,431	33	6,495	77,915
1892	56,311	5,293	4,033	366	10,824	66,033
1893	68,751	1,701	382	100	11,244	70,931
1894	74,124	970	874	129	10,874	76,097
1895	89,800	1,704	1,896	545	11,549	93,945
1896	103,166	11,137	3,642	608	10,453	118,553
1897	134,933	13,669	2,995	317	13,333	151,914
1898	153,550	16,462	5,736	1,183	23,255	176,031
1899	177,703	14,952	5,809	1,145	26,208	199,639
1900	165,762	8,570	1,840	1,718	18,524	177,890
1901	191,128	6,354	2,525	667	15,898	200,674
1902	202,390	6,648	3,107	180	15,323	212,325
1903	189,027	3,815	7,584	136	13,621	200,562
1904	169,704	5,780	5,860	34	13,571	181,378
1905	183,877	5,674	2,400	10	11,498	191,961
1906	173,926	3,608	3,294	21	13,419	180,849
1907	181,998	11,246	4,242	18	11,977	197,504
1908	195,780	11,299	3,396	293	11,002	210,768
1909	189,845	9,128	2,459	86	10,632	201,518
1910	130,303	5,305	2,557	8	8,712	138,173
1911	135,433	9,092	2,918	26	10,240	147,469
1912	169,675	15,018	6,282	258	12,811	191,233
1913	134,017	5,822	6,785	316	12,605	146,940
1914	146,007	4,081	4,007	122	11,665	154,217
1915	179,377	6,596	1,515	609	15,604	188,097
1916	251,026	2,793	2,674	7,898	17,818	264,391
1917	217,435		5,617	25,864	17,741	248,916
1918	372,723		14,287	18,436	14,126	405,446
1919	337,812	30,055	7,457	103,202	118,270	478,526
1920	116,257	6,597	6,357	26,209	29,827	155,420
1921	193,724	7,568	9,222	1,398	20,411	211,912
1922	240,449	10,821	17,728	487	20,128	269,485
1923	299,387	18,762	18,132	3,888	31,924	340,169
1924	261,179	18,706	10,259	3,419	30,314	293,563
1925	212,938	8,457	4,958	497	25,003	226,850
1926	161,099	1,558	5,207	128	15,726	167,992
1927	101,888	514	5,117		15,094	107,519
1928	102,252	659	4,686		16,552	107,597

Fiscal year 1881-1918.

Calendar year 1919-1928.

Source: 1910-1918 U.S.D.A. Yearbooks. 1918-1924 U.S. Dept. of Commerce. Trade Promotion Series No. 26. 1925-1926 U.S. Commerce and Navigation reports. 1927-1928 Monthly Summary of Foreign Commerce.

TABLE VII—PORK FRESH. EXPORTS FROM U.S. (000 omitted) Pounds

Year ended June 30	France	United Kingdom	Bermuda	Canada	Panama	Cuba	Total
1884		47		138			185
1885		142		135			424
1886		(1)		69			71
1887				24			24
1888				63			63
1889				22			23
1890				279			279
1891		772		47			819
1892		334		44			378
1893		901		12			913
1894		1,141		27			1,169
1895		752		67			819
1896		674		71			745
1897		1,256	2	19			1,306
1898		11,392		4			12,224
1899		40,777		7		6	41,310
1900		25,897		12		42	25,949
1901	1	30,697		10		21	30,729
1902	19	44,017	12	32		45	44,172
1903		18,529	8	72		58	20,966
1904		14,000	28	325		2	18,634
1905		13,896	11				14,946
1906		12,581	2		5	190	13,444
1907		10,972	11		68	212	11,468
1908		15,441	58	361	216	113	16,374
1909		9,001	43	53	374	110	9,555
1910		395	26	78	231	235	1,040
1911		75	31	207	440	89	1,355
1912		968	15	891	565	82	2,598
1913		758	50	580	685	99	2,458
1914		1,354	13	232	687	151	2,668
1915	324	2,832	72	46	370	137	3,908
1916	2,270	26,403	103	32,962	380	338	63,006
1917	920	23,787	115	24,833	398	178	50,436
1918	642	8,235	9	11,396	44	372	21,390
1919	2,019	1,197	35	21,906	181	545	26,777
1920	1,281	19,404	76	12,718	198	733	38,305
1921	6	17,039	47	23,915	518	974	56,083
1922		33,349	91	11,671	474	2,333	54,691
1923		9,298	62	12,596	377	2,723	26,974
1924	270	19,098		3,837	419	2,017	32,803
1925	23	13,269		1,915	584	2,026	19,821
1926		10,540		918	487	2,101	15,564
1927		4,869		407	490	1,590	8,235
1928		5,970		856		1,591	11,413

Source: 1910-18. U. S. D. A. Year Book 1924. 1884-1909. 1919-27 Commerce and Navigation Reports.

(1) Less than 500 lbs.

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